

HIRSCH (A) & KAHN (Geo. H.)

GEO. H. KAHN

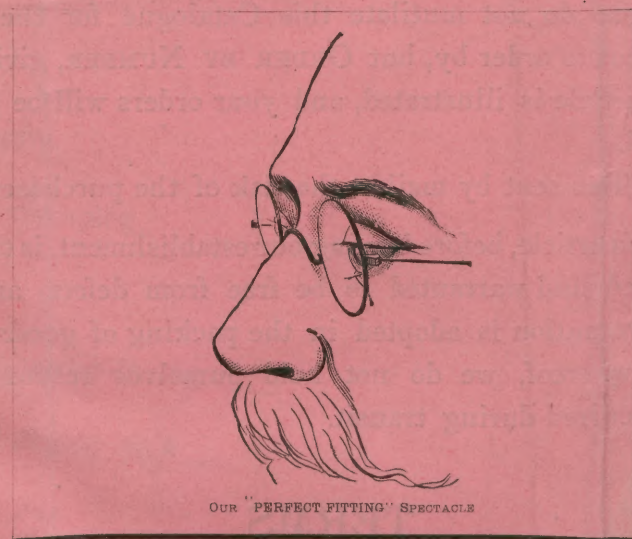
ALPHONSE HIRSCH

Priced and Illustrated Catalogue

OF

**Hirsch, Kahn & Co.**

MANUFACTURING OPTICIANS



**333 Kearny Street**

**Between Bush and Pine**

**SAN FRANCISCO, CAL.**

Optical, Mathematical, Meteorological, Engineering and Electrical  
Instruments, Photographic Apparatus and Supplies, Etc., Etc.



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Please do not mutilate this Catalogue for the sake of getting a cut to order by, but ORDER BY NUMBER, giving page on which article is illustrated, and your orders will be perfectly understood.

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Each article, before leaving our establishment, is thoroughly examined and warranted to be free from defect, and every possible precaution is adopted in the packing of goods; in consequence whereof, we do not hold ourselves responsible for damage incurred during transit.

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**Respectfully,**

**HIRSCH, KAHN & CO.**

**San Francisco, 1887-8.**



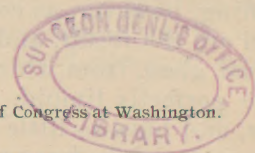


# PREFACE

In opening our catalogue and prior to directing the reader's attention to the following *Popular Optical Instruments*, we feel constrained to state that we have intentionally omitted the usual stereotyped *Treatise on the Eye and its Defects*, the limited space generally devoted to "clippings from Standard Works," being quite inadequate to that exhaustive treatment of which the subject is deserving. In the opening pages we have confined ourselves to a few general remarks, which cannot fail to prove of value to those seeking the services of an optician, in the proper selection of spectacles and eye-glasses.

## "PRO BONO PUBLICO"

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RELATIVE TO THE SOURCE FROM WHENCE TO PROCURE

## SPECTACLES \* AND \* EYE-GLASSES

The lack of familiarity, on the part of the public, with that branch of trade so closely allied to science, the "Optician's," has offered, and still affords, ample opportunity for the vilest perpetrations of fraud and absolute theft.

We daily hear of persons being most frightfully humbugged by some *Optician* proclaiming his professed scientific ability, which, together with his asserted knowledge of the eye, fills the pocket of the imposter; notwithstanding that he may have decorated himself with the title "Doctor," and embellish his conversation with the narrative of his having been a graduate under some *defunct* oculist, whose name, by the way, might perhaps not even be found in the volumes of an International Death Record. It is not to be expected that the purchaser can be so thoroughly posted as to exempt him from accepting of the Optician's advice; but he should be able to detect any imposition on science.

A mere assertion on the part of the Optician as to his qualifications should not suffice to gain the purchaser's confidence, and it will be well, at all times, to mistrust those who boast of superior ability, as among such classes it is rarely, if ever found.

It is obvious that if these men, who claim but very little short of what would constitute their efficiency as oculists, had the experience of which they boast, they would certainly find it more profitable to follow that profession legitimately than the avocation of a vender or dealer in spectacles and eye-glasses.

The Optician, in a measure, bears the same relation to the Oculist as does the Apothecary to the Physician; and we should no more think of placing unbounded confidence in the Optician than we would hasten to consult the Apothecary in a complicated physical malady.

In those instances where an abnormal condition of the eye ensues as a natural consequence of advancing years, the *qualified* optician may be safely called upon to provide the necessary glasses; and where more grievous defects are suspected by him, his advice, as regards the propriety of consulting the oculist, should be accepted as *imperative*. When it is possible, no person should leave the optician's establishment until he himself is convinced, by his own judgment, that he sees clearly; for we are aware that parties daily practice the simple method of forcing glasses upon the purchaser to avoid trying their own patience or losing the sale.

Those persons who can not be satisfactorily suited *should, by all means, consult the oculist* rather than suffer the obtrusion of an unprincipled dealer.

We also find many who shrink from the idea of wearing glasses for multifarious reasons best known to themselves; but it is just these persons who, in the course of events, are dropped upon, perchance, by some obtrusive genius whose persuasive powers are garnished for the occasion, and who succeeds in perpetrating a fraud.

Thus we observe the general term "optician" falling into disrepute, and wholly in consequence of the comparative ease with which our people are humbugged, they becoming conscious of the fact but too late to retrieve their misfortune, and to dispel that most lasting of impressions, the first.

We frequently find glasses introduced under a special name or trade-mark, the latter designed to deceive persons by leading them to suppose the lenses to be possessed of some of the qualities of the "diamond." We have met with such things as 'Royal Saxon Rock Crystals,' "Peruvian Tinted Restorers," and many others equally ridiculous.

Rock Crystal Lenses, commonly called Brazilian Pebbles, are frequently claimed to possess superior qualities, many dealers attributing the benefits derivable from their use to causes at variance with the actual facts, these not being within the knowledge of *such* dealers.



About the principal, and perhaps most commendable feature of these lenses, however, is the permanent luster of their polished surfaces; but let it be understood that, as in most cases there is a stratification of media, certain rays of light are deflected from that course which they should possess in common, by impinging upon the almost unnoticeable imperfections known as *striae*, in which case a more imperfect image is produced than is obtained through lenses of the best glass.

In purchasing pebbles it is, therefore, not so great a matter of importance to know that you have succeeded in getting the article, as it is to be certain that you have not been deceived in the *quality*; and I may safely say that, of the pebbles sold, by far the greater percentage is imperfect.

In regard to lenses made from glass, the quality is varying, perfect and imperfect lenses being distinguished by the manner of their production and the grade of material used in their manufacture.

The cheaper, and necessarily imperfect lenses are generally composed of an inferior glass having a greenish hue, also generally accompanied by air bubbles, specks and other impurities; such imperfections being trifling, however, as compared to the irregularities emanating from defective polishing. Not one, but many foci are the result, and the undesired spherical and chromatic aberration a natural consequence.

Optical glass, from which the finer lenses are produced, requires to be made with the utmost care. It should be perfectly limpid, exempt from air-bubbles, *striae*, or veins; of uniform density throughout its substance, and have so little color that quite a thick piece may give no appreciable tinge to the rays of light.

Such material is known to be of two kinds—namely, Crown glass and Flint glass; their constituents being in the main, respectively, silicate of potash and lime, and silicate of potash and lead.

The glass having been selected for a lens, it is a matter of the highest importance that it should be carefully ground, by means of laps of the required curvature, and highly polished.

Here, in conclusion, I would state that no glass is actually fit to act as an assistant to vision, unless its surfaces have been *ground* and *polished*, whether it be a glass with or without focus.

Since the introduction of the Ophthalmoscope by Helmholtz, in 1851, our knowledge of the diseases of the eye and subsequent causes of defective vision is no longer conjectural. The oculist, by aid of this important instrument, is now enabled to illuminate and visually examine the eye of his patient, thus rendering his understanding of the appearance of the internal structure absolute; and, from his familiarity with the normal condition, is able to detect any departure therefrom. Hence, in the correction of the more uncommon defects of vision, the oculist is best fitted to judge of the propriety of the application of spectacles and of the probable benefits to be derived from their use.

The lenses employed in such instances, being necessarily of a more complex nature, involving a possible combination of spherical, prismatical and cylindrical surfaces, together with a prescribed axial position before the eye, renders it a matter of the highest importance that the scientific principles involved be thoroughly understood by the optician in carrying out the instructions of the oculist. Hence, as the value of glasses depends largely upon their careful adaptation to the eye, the assistance of a competent optician will, in most cases be of advantage to the purchaser, and the satisfaction to be derived from the former's services will be proportionate to his skill and honesty. So many unqualified persons have taken to the sale of spectacles and eye-glasses of late years, that too much care can not be exercised in the selection of a competent man.

It will, however, be a safe rule to avoid purchasing glasses of peddlers, jewelers, *perambulating* oculists or *boasting* opticians; and with reference to the latter, since ability speaks for itself, and *pretensions are indicative of ignorance*, discrimination is not difficult.

## GENERAL INSTRUCTIONS

### RESPECTING THE SELECTION OF SPECTACLES AND EYE-GLASSES

Where impaired vision is suspected, it is recommended that a competent optician be consulted, who will advise as regards the propriety of conferring with the oculist; though, if the defects in vision accrue as a natural consequence of advancing years, the *qualified* optician may himself furnish the necessary glasses, in which case it is his duty to provide the *weakest* glasses that will neutralize the deficiency. The object of wearing glasses is *not* to magnify the print, but to make it appear *distinct*, and, as nearly as possible, of the *same size* as before the vision was impaired.

Too great care cannot be exercised in the choice of spectacles, as the chief danger in their selection is that of getting them too strong; and we have no hesitation in saying that the empirical, hap-hazard plan of selection generally employed by those who sell spectacles is but too frequently attended by the worst consequences.

The habitual use of glasses *too strong* in the commencement of failing vision is the *most powerful factor* in inducing *rapid senile changes* in the crystalline lens and muscles of accommodation; the ciliary muscles are relaxed, and only required to contract to a certain point. They soon become *enfeebled* and *lose the power* to act beyond their accustomed tension. This state of tension soon indicates their *maximum* strength, which cannot long be maintained; hence glasses of higher power *must* be substituted to relieve the strained accommodation.



# HIRSCH, KAHN & CO'S

## Improved System

FOR FITTING EYES,

No. 333 Kearny Street, Bet. Bush and Pine, San Francisco, Cal.

### No. 1

The first of May! There is a merry freshness in the sound, calling to our minds a thousand thoughts of all that is pleasant and beautiful in nature, in her sweetest and most delightful form. What man is there, over whose mind a bright spring morning does not exercise a magic influence—carrying him back to the days of his childish sports, and conjuring up before him the old green field with its gently waving trees, where the birds sang as he has never heard them since—where the butterfly fluttered far more gaily than he ever sees him now, in all his ramblings—where the sky seemed bluer, and the sun shone more brightly—where the air blew more freshly over greener

### No. 2

columns in Carlton-terrace or a grand poussette of the middle-classes, round Alderman Walthman's monument in Fleet-street,—or a general hands-four-rounds of ten-pound householders, at the foot of the Obelisk in St. George's-field? Alas! romance can make no head against the riot act, and pastoral simplicity is not understood by the police. Well; many years ago we began to be a steady and matter-of-fact sort of people, and dancing in spring being beneath our dignity, we gave it up, and in course of time it decended to the sweeps—a fall certainly, because, though sweeps are very good fellows

### No. 3

Spectacle-wearers should be careful and not buy the cheap, common Spectacles. It is poor economy, as they wear the eye and injure the optic nerve, and ruin your sight quickly.

### No. 4

In reading, the letters should appear clear and distinct. If blurred and misty, and small black specks are seen, it indicates a failing sight, and needs correction with properly fitted glasses.

### No. 5

Your eyesight is priceless, therefore take the best care of it; and if you find it failing, write to us for one of our Improved Systems for fitting the eyes, and we will forward it by return mail.

### No. 6

It is a great mistake to suppose that anything is to be gained by remaining without glasses when they are really needed, or by using weak glasses when stronger ones would give better and easier sight.

### No. 7

Do not use your husband's, wife's, brother's or sister's glasses, and imagine because you can see well for the moment, that they fit you. This is a great evil, and tends to ruin your sight quickly.

### No. 8

It is important to have your glasses mounted in frames, that will keep them always in the proper position before the eyes. Our perfect fitting Spectacles and Eyeglasses will always do this.

### No. 9

Pebble lenses possess the advantage of being extremely hard, and do not scratch or break readily. They bear a very much higher polish than glass, and are more refractive.

### No. 10

Genuine pebble is only pure white, without veins or blemish; it is very cold, don't scratch, and can easily be tested with the tourmaline or pebble tester.

### No. 11

Avoid peddlers and so-called doctors, who travel from place to place and impose upon the public. They sell you the poorest glasses, regardless of their effect upon your eyes.

### No. 12

When your glasses become broken, send them to us for repair by mail,

### No. 13

And we will return them the next day.

### No. 14

Repairing in all its Branches.

### No. 15

The Leading Opticians

### No. 16

333 Kearny St.



**DIRECTIONS.**—Hold the test prints (on the other side) 14 inches from the eyes and find the smallest size type you can **distinctly read without glasses**, at that distance. Mark that line with an **X** and return this sheet to us, answering the following questions in writing.

---

1. How old are you?.....
2. Are your eyes full and prominent or small? .....
3. Are your eyes sensitive to light?.....
4. Have you ever used glasses; if so, how long?.....
5. What is the nearest distance in inches, at which you can read the  
No. 1 type on the other side?.....
6. Can you read for any length of time without tiring your eyes?....  
.....
7. Can you read a sign across the way?.....
8. Do objects at a distance look clear, or are they blurred and misty?  
.....
9. Do you see better in the morning?.....
10. Do you want Spectacles or Eyeglasses?.....
11. Do you want them for seeing at a distance or for reading?.....  
.....
12. In what kind of Frames, Gold, Nickel, Steel, Shell or Rubber?....  
.....
13. Is your nose high or low at the bridge?.....
14. Is your face narrow, medium or wide?.....
15. How many inches from the center of one eye to the center of the  
other. (Measure with a rule from pupil to pupil.).....

We exercise the greatest care in fitting the eyes properly, and use Dr. Javal's Celebrated Optometer or instrument for measuring the eye in all cases of defective vision. This instrument is the invention of Dr. Javal, of Paris, and is the only one known which will correct all defects of the eye.

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## HIRSCH, KAHN & CO.

### MANUFACTURING OPTICIANS

And Importers of

Barometers, Compasses, Microscopes, Telescopes,  
DRAWING INSTRUMENTS, ELECTRIC BATTERIES, THERMOMETERS,

Opera, Field and Marine Glasses, Meteorological, Engineering and Scientific Instruments

---

OF ALL KINDS.

---

[OVER.]



Spectacles  
and  
Eye Glasses,  
Optical,  
Mathematical  
Meteorological  
and  
Engineering  
Instruments,  
Photographic  
Outfits  
and  
Supplies,  
Etc., Etc.

**HIRSCH, KAHN & CO.**

**333 Kearny Street,**

**SAN FRANCISCO,**

**CAL.**







The eye is oftentimes abused by an exactly contrary course, from the fact that persons frequently and erroneously believe it right to do *without* glasses as long as possible, thereby allowing their eyes to become strained and exhausted to so great an extent that amaurosis, diseases of the retina, cataract, blindness, etc., are frequently occasioned by it. We therefore repeat:

Whenever a person cannot read at his usual distance without the eyes becoming fatigued or painful, and the letters becoming indistinct or blurred, he should *at once* procure the proper spectacles suited to the condition of his eyes, as by this course he will preserve his vision for a much longer period.

### METHOD OF SELECTING GLASSES

For Ordinary Defects of Vision

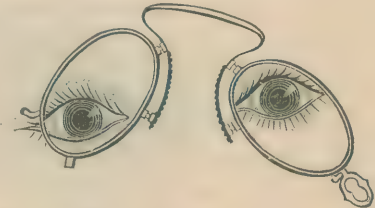
In cases where persons cannot consult with us in person, we recommend that the enclosed Test-Types be resorted to, the same to be read under illumination of perfect daylight, or properly adjusted artificial light, and in a manner as to avoid taxing of the eyes by undue reflection or direct glare. By sending in answers to the questions, as pertaining to the test of each eye separately, we shall, in most instances, be enabled to supply glasses in relief of the imminent defects, provided these are due to diminished power of accommodation, or even slight near-sightedness:



If these letters do not appear equally black to you, the difference in shade is caused by astigmatism which is a defect in the vision, and very frequently causes severe headaches. This trouble can be entirely remedied by glasses ground specially to correct this defect.



One style of Eye-glass that is sold, showing the eye at the edge of the glass instead of the center. No Glass gives Rest or Comfort to the Sight, unless the eye is in the center of the lens.



Another style of Eye-glass, sold to Rest the Eye and warranted to ruin the sight. But, then, they only cost 50c.; so if you can save a dollar, what is the difference, even if you ruin your sight.

HIRSCH,

KAHN

& CO.



PERFECT

FITTING

EYE-GLASS

Particular attention is called to the way this Eye-glass sets before the eye.

### THE TIME TO WEAR GLASSES

"When persons find their eyes becoming dry and itching, or print appears indistinct and confused, and when it is found necessary to place an object more than twelve inches from the face to read or see, spectacles are a necessity. Glasses sold by peddlers, and jewelers, generally, are hurtful to the eyes, as the lenses are made of inferior material, and are not symmetrically ground. Unless the lenses are mounted in a suitable frame and properly placed before the eyes, discomfort is sure to arise from their prolonged use. The proper time to begin wearing glasses is just as soon as the eyes tire on being subjected to prolonged use."

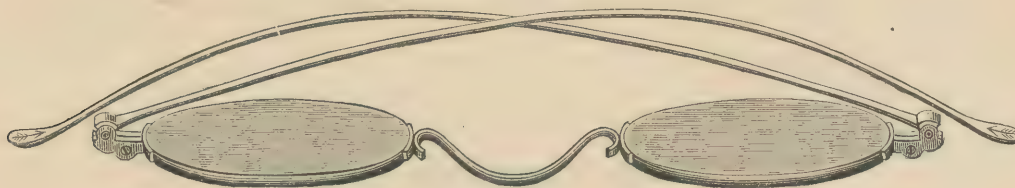
Our Stock is the most complete on the Pacific Coast, and comprises SPECTACLES and EYE-GLASSES in Gold, Silver, Nickel, Steel, Shell or Rubber Frames, with the celebrated Brazilian Pebble Lenses or pure English Crown and Flint Glass: also, FIELD, MARINE and OPERA GLASSES, TELESCOPES, BAROMETERS, THERMOMETERS, MICROSCOPES, COMPASSES, MAGNIFYING GLASSES, DRAWING INSTRUMENTS, AMATEUR PHOTOGRAPHIC OUTFITS, ETC., ETC., in great variety and at extremely low prices.



# GOLD AND SILVER SPECTACLES

Best finish and assay guaranteed. Frames of rounded or flat finish at option of purchaser.  
All spectacles sold by us are furnished with the best English lenses, each pair in a fine morocco case.

## SINGLE TEMPLE SPECTACLES

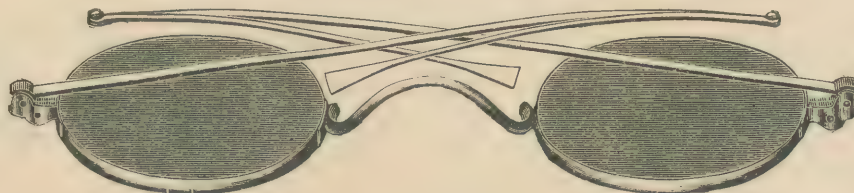


101

Pebbles \$2 00 additional

	Light	Medium	Heavy
Gold Spectacles, 10 karats, per pair.....	\$5 00	\$6 00	\$ 7 50
“ “ 12 “ “ .....	7 50	9 00	12 00
“ “ 14 “ “ .....	8 50	10 50	13 00
“ “ low grade “ .....	3 50	4 00	.....
Coin Silver Spectacles “ .....		2 50	.....

## JOINTED TEMPLE SPECTACLES



102

Pebbles \$2 00 additional

	Medium	Heavy
Gold Spectacles, 10 karats, per pair.....	\$ 7 50	\$ 9 00
“ “ 12 “ “ .....	10 00	12 00
“ “ 14 “ “ .....	12 50	14 00
Coin Silver Spectacles, “ .....	3 00	.....

## EXTENSION TEMPLE SPECTACLES



103

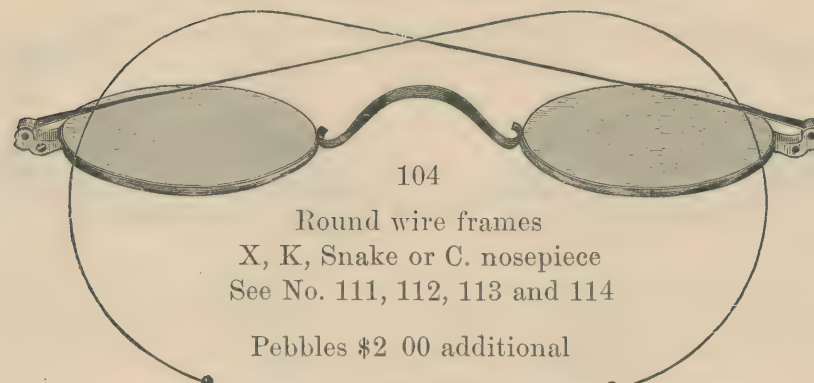
Pebbles \$2 00 additional

	Medium	Heavy
Gold Spectacles, 10 karats, per pair.....	\$ 8 00	\$ 9 50
“ “ 12 “ “ .....	10 50	12 50
“ “ 14 “ “ .....	12 50	15 00
Coin Silver Spectacles, “ .....	3 50	.....



## GOLD AND SILVER SPECTACLES—Continued

## RIDING BOWS



104

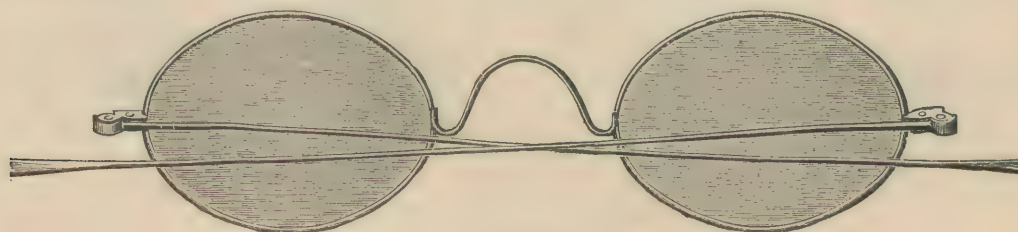
Round wire frames  
X, K, Snake or C. nosepiece  
See No. 111, 112, 113 and 114

Pebbles \$2 00 additional

				Light	Medium	Heavy
Gold Spectacles, 10 karats, per pair.....				\$5 00	\$ 6 50	\$10 00
“ “ 14 “ “ .....				7 50	10 00	12 50
Frameless “ 10 “ “ .....				5 00	7 50	.....
“ “ 14 “ “ .....				7 50	10 00	.....
Coin Silver Spectacles, riding frames, per pair .....					3 50	.....

## STEEL SPECTACLES

Any of the following Spectacles can be had nickel plated if desired without extra charge.



105

Pebbles, \$2 00 additional

Spectacles, extra fine, full finished, best English Lenses, per pair.....						\$2 50
“ “ finely “ “ “ “ “ .....						2 00
“ medium fairly “ 2nd quality “ “ .....						1 50
“ common, per pair .....						\$.50 1 00

## DOUBLE VISION SPECTACLES



106

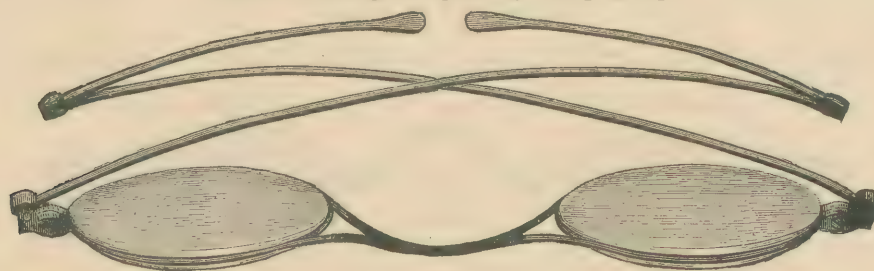
Pebbles, \$3 50 additional

Spectacles, extra fine, full finished, best English Lenses, per pair.....						\$3 00
“ “ finely “ good “ “ .....						2 00

These Spectacles, having the lower and upper half of each eye fitted with carefully centred lenses of different foci, afford the convenience of near and distant vision simultaneously.



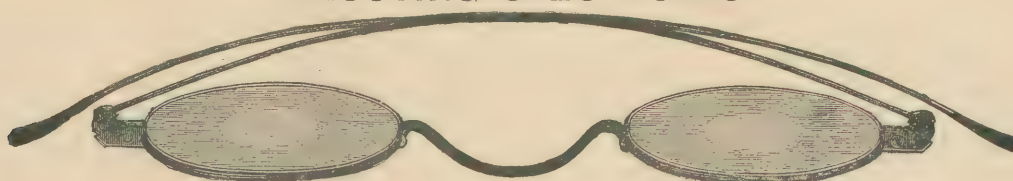
STEEL SPECTACLES—Continued  
CATARACT SPECTACLES



107

Spectacles, extra fine, full finished, per pair.....\$3 50  
Any of the preceding Spectacles can be furnished with jointed temples, without extra charge.

## SHOOTING SPECTACLES



108

Spectacles, extra fine, full finished, large round eye, per pair.....\$2 50  
" good quality, per pair.....1 50  
" Slotterbeck's (patent shooting), per pair.....2 50

CLERICAL OR  $\frac{1}{2}$  EYE-SPECTACLES

109

Pebbles; \$2 00 additional

Spectacles, extra fine, full finished, per pair.....\$2 50  
" " fairly " ".....1 50

## FRAMELESS SPECTACLES



110

Pebbles, \$3 00 additional

Frameless Spectacles, extra fine, steel mountings, nickel plated, per pair.....\$2 50



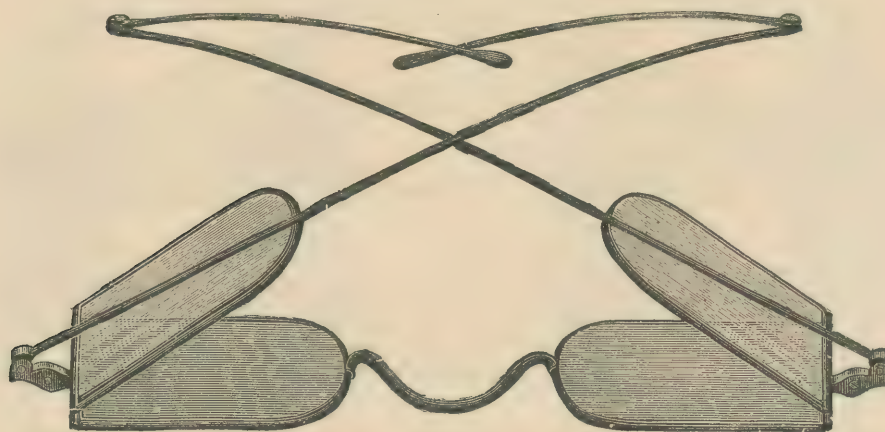




## EYE PROTECTORS

Colored Glasses, Blue or Smoke. Assorted Shades.

## SIDE LIGHT PROTECTION SPECTACLES



116

Spectacles, side lights, extra fine steel frames, extra large eyes, riding temples, per pair.....	\$2 50
“ “ good “ medium “ “ “ “ .....	2 00
“ “ fair “ “ “ “ “ “ “ .....	1 50



117

Coquille Spectacle

Riding Temple

\$1 00, \$1 50 and \$2 00



118

Tally Ho

Protection Temple

\$3 50



119

Coquille Spectacle

Straight Temple

50c., 75c., \$1 00 and \$1 50



120

Railroad Spectacle

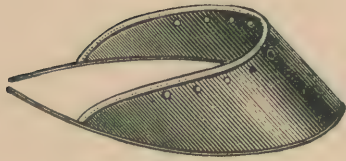
Velvet Edge, \$2 00

Plain Edge, 1 50

Above Spectacles supplied with flat or hollow ground lenses in white or colored glass.



## EYE-SHADES



123

121	Eye-shades, silk for both eyes.....	\$1 00
122	“ “ “ one eye.....	25
123	“ Leatherette for both eyes.....	25

## GOLD EYE-GLASSES

Best finish and assay guaranteed

All Eye-glasses sold by us, are furnished with the best English lenses, each pair in a fine morocco case with a silk guard attached.

HIRSCH,  
KAHN

&amp; CO'S



124

Pebbles, \$2 00 additional

With or without our patent cork nosepieces

Perfect

Fitting

Eye-glass

					Light	Medium	Heavy
Gold Eye-glasses, 10 karats, per pair.....					\$5 00	\$ 6 00	\$ 7 50
“ “ 12 “ “ .....					6 50	7 50	8 50
“ “ 14 “ “ .....					8 50	10 00	12 00

## CAUTION!

Never buy Spectacles or Eye-glasses of Peddlers representing themselves from our house. We employ no agents.



125

Pebbles, \$2 00 additional

With or without our patent cork nosepieces

## REMEMBER

THE

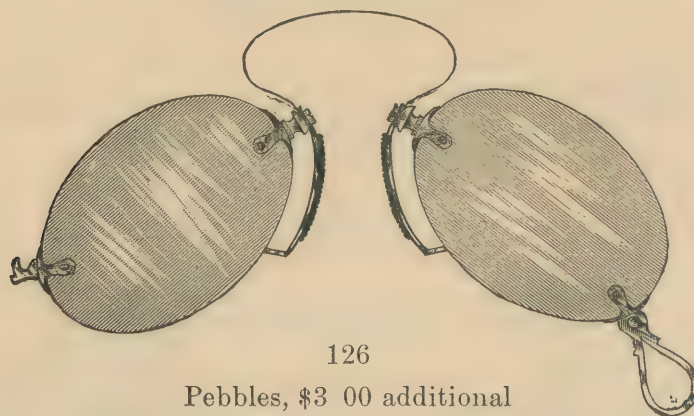
SIGHT IS PRICELESS

So do not trifle with it

					Light	Medium	Heavy
Gold Eye-glasses, 10 karats, per pair....					\$5 00	\$ 6 00	\$ 7 50
“ “ 12 “ “ .....					6 50	7 50	8 50
“ “ 14 “ “ .....					8 50	10 00	12 00
“ “ low grade “ .....					3 00	4 00	.....
Coin Silver Eye-glasses, per pair.....						2 50	.....



## GOLD EYE-GLASSES—Continued



126

Pebbles, \$3 00 additional

With or without our patent cork nosepieces

Frameless Eye-glass, extra fine finish and lenses, 14 karats, per pair	.....	\$7 50
“ “ “ “ “ “ 10 “ “	.....	5 00
“ “ “ “ “ nickel mountings “	.....	2 50
“ “ good “ bronze “	.....	1 50

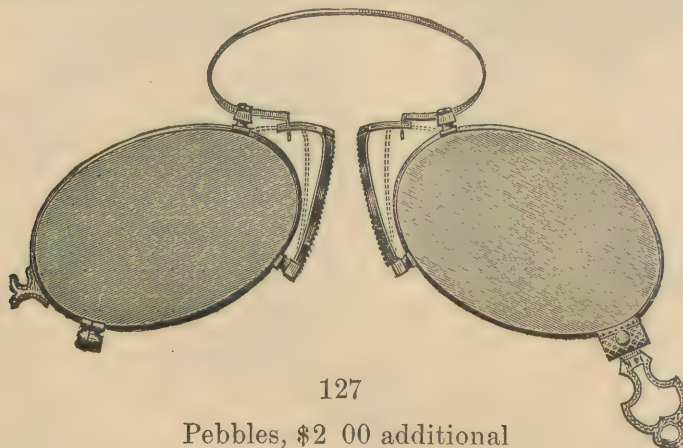
## STEEL EYE-GLASSES

Any of the following Eye-glasses can be had nickel-plated if desired, without extra charge.

HIRSCH,

KAHN

&amp; CO'S



127

Pebbles, \$2 00 additional

With or without our patent cork nosepieces.

Eye-glasses, finely finished steel frames, self adjusting nosepieces, per pair	.....	\$2 50
--	-------	--------

Perfect

Fitting

Eye-glass

Lenses  
ground if necessary  
to correct each  
particular  
case.



128

Pebbles, \$2 00 additional

With or without our patent cork nosepieces.

Eye-glasses, finely finished Steel frames, best English lenses, per pair	.....	\$2 50
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No visual  
defect where glasses are  
required too com-  
plicated for  
us.



## STEEL EYE-GLASSES—Continued



129

Pebbles, \$2 00 additional

Eye-glasses, finely finished frames, good quality lenses, per pair .....	\$1 50
“ “ “ “ medium “ “ “ “ .....	1 00



130

Artificial Eyes, (French) finest quality .....	\$10 00
“ “ repolished (at owner's risk) .....	2 50

Our collection of artificial eyes is large and varied; in ordering the same, the money must invariably accompany the order. We take the greatest possible care in packing, and will assume no risks whatever in transportation.

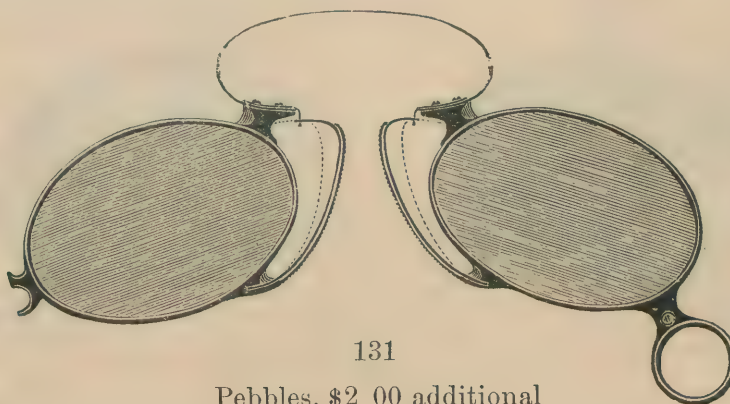
## SHELL, ZYLONITE AND HARD RUBBER EYE-GLASSES

Zylonite, a new and *superior* fibrous material introduced in the manufacture of eye-glass frames, rendering them equal in beauty to Tortoise Shell, lighter, and more durable; liability to fracture, from changes in temperature or falling upon hard substances, being fully obviated.

We can further recommend Zylonite as being devoid of that "*acetous exudation*" common to other kindred material heretofore so extensively and unsuccessfully appropriated to the above purpose.

All Eye-Glasses sold by us at retail are furnished with lenses of the *finest quality only*; each pair being supplied with a fine morocco case and silk guard.

HIRSCH,  
KAHN  
& CO'S



131

Pebbles, \$2 00 additional

Perfect  
Fitting  
Eye-glass

With or without our patent cork nosepieces.

Shell Eye-glasses, best finish, finest quality lenses, self adjusting nosepiece, per pair .....	\$2 50
Zylonite “ “ “ “ “ “ “ “ .....	2 50
Rubber “ “ “ “ “ “ “ “ .....	2 50



*Shell, Zylonite and Hard Rubber Eye-Glasses—Continued*

Prismatic  
and cylindrical  
lenses.



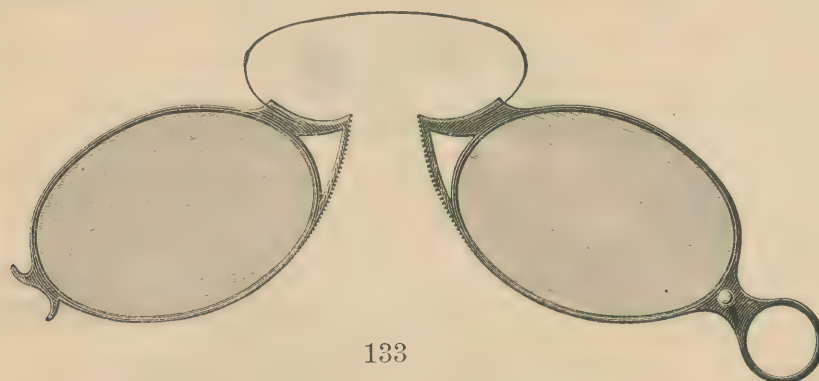
Ground to order  
at  
two hours' notice.

132

Pebbles, \$2 00 additional

With or without our patent cork nosepiece.

Shell Eye-glasses, best finish, finest quality lenses, per pair.....	\$2 50
Zylonite " " " " " ".....	2 50
Rubber " " " " " ".....	2 50
" " good finish, good quality lenses, ".....	\$1 00, 1 50, 2 00
" " cheapest grades - - ".....	.50c., 75c., 1 00



133

Pebbles, \$2 00 additional

Shell Eye-glasses, best finish, finest quality lenses, per pair.....	\$2 50
Zylonite " " " " " ".....	2 50
Rubber " " " " " ".....	2 50

**COLORED EYE-GLASSES**

Blue or Smoke assorted Shades

Any of the following Eye-glasses will be supplied with flat or hollow ground lenses, as desired



134

Rubber Eye-glasses, best finish, extra large eye, per pair.....	\$1 50
Steel " " " " " ".....	\$1 50 1 00
Frameless " " " " " ".....	2 00 1 50
Rubber " fair " " " " ".....	\$ 50 75 1 00

Above Eye-glasses in medium or small eye if desired



## COLORED EYE-GLASSES—Continued



135

Goggles, wire gauze, with velvet bound edges and elastic, fine quality, per pair.....	\$1 00
“ “ “ “ plain edges, fine quality, per pair.....	75
“ “ “ “ ordinary quality, per pair.....	\$ 25 50

## EYE-GLASS CHAINS, CORDS AND HOOKS



136

137

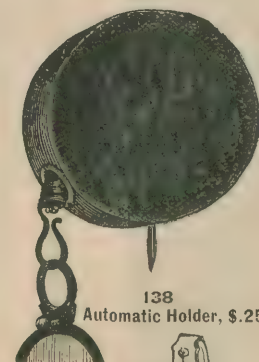
10 Karat

14 Karat

136 or 137.....\$3 75

\$5 50

Best rolled plate..... 1 50



138

Automatic Holder, \$.25



139

Gold Hooks

Black Hooks

\$1 50, 2 00

\$.15

Silk Guards, 10 cents



## EYE-GLASS CASES



140



142



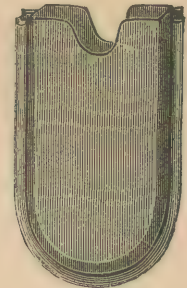
143



144



145



146

- |      |   |        |
|------|---|--------|
| 140. | Morocco case, open end, good quality .....                                  | \$0 10 |
| 141. | " " fish mouth, best " .....  | 0 10   |
| 142. | " " for Eye-glass with off set guards, fine quality .....                   | 0 20   |
| 143. | Papier Mache case, pearl or silver inlaid, fish mouth, closed ends .....    | 0 50   |
| 144. | Tin case, open end, planished .....   | 0 25   |
| 145. | Papier Mache case, open end, decorated .....                                | 0 35   |
| 146. | Leather case, nickel edges .....  | 0 50   |
| 147. | Nickel " engraved with hinged cover .....                                   | 0 50   |
| 148. | Sole leather case with pull off covers, yellow or black, fine quality ..... | 0 50   |

## SPECTACLE CASES



149



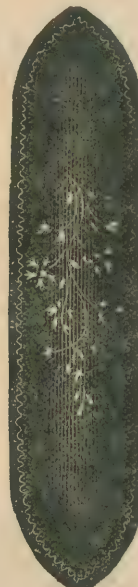
150



151



152



153



154

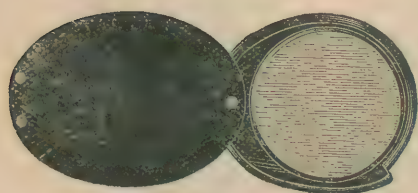


155

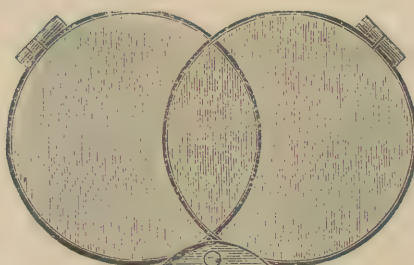
- |      |   |                    |
|------|---|--------------------|
| 149. | Chatelaine cases, various styles in leather, plush, velvet, plain or ornamental ..... | \$1 50, 2 00, 3 00 |
| 150. | Sole leather " with pull off covers, yellow or black, fine quality .....              | 0 50               |
| 151. | Tin cases, planished, open end .....  | 0 25               |
| 152. | Papier mache cases, open end, inlaid .....  | 0 50               |
| 153. | " " fish mouth, closed end, pearl inlaid .....  | 0 50               |
| 154. | Silver plated, " closed, with hinge cover for riding specs .....                      | 1 75               |
| 155. | Morocco cases, open end or closed with tuck, fine quality .....                       | 0 15               |
| 156. | " " " " " " for riding specs .....  | 0 15               |
| 157. | Papier mache cases, closed end, with hinge cover, for riding specs .....              | 0 50               |
| 158. | " " " " " richly inlaid with pearl .....  | 1 00               |



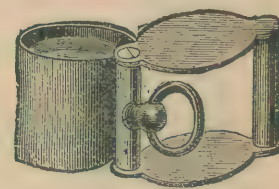
## POCKET MAGNIFIERS



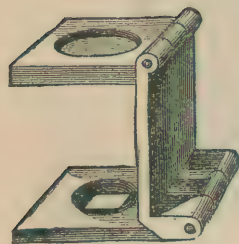
160



163



161



162



164



165



166



167

160	Rubber Magnifiers in single and double lenses	from 50c. to \$2 50
161	Coddington Magnifiers, nickel-plated folding	$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{8}$ $\frac{3}{8}$ inch in diam.
162	Linen Provers, $\frac{1}{4}$ or $\frac{1}{2}$ inch aperture, brass or nickel	\$1 50    2 00    2 50    3 00    3 50
163	Nickel Magnifiers, single, double or triple lens	\$0 75
163A	Oxidized " " " "	\$1 50, 2 00, 2 50
164	Three Legged Microscope, 2 lenses adjustable for focus, brass or nickel	\$1 00, 1 50, 2 00
165	Coddington Magnifiers, with handle	75
166	Reading Glasses, mounted in round nickel-plated frames, ebony handles:	
	21 lignes, \$1 00	$\frac{3}{8}$ 1 $1\frac{1}{8}$ $1\frac{1}{2}$ inch in diam.
	36 lignes, \$2 25	
	48 lignes, \$3 25	
	60 lignes, \$10 00	
	24 " 1 25	
	39 " 2 50	
	51 " 3 75	
	63 " 11 00	
	27 " 1 50	
	42 " 2 75	
	54 " 4 00	
	64 " 12 00	
	30 " 2 00	
	45 " 3 00	
	57 " 8 00	
167	Rubber Magnifiers, single, double and triple lens:	
	Single lens	$\frac{3}{4}$ $\frac{7}{8}$ 1 inch in diam.
	Double lens	\$0.50    0.75    1 00
	Triple lens	\$1 00, 1 50, 1 75
		\$1 25, 1 50, 2 00

We keep Magnifiers of every description.



# MICROSCOPES



168

## Universal Household Microscope

Seven inches in height, with tubular lacquered brass stand, having joint affording any angle of inclination, triplet objective and one eye-piece, affording powers of 40, 60 and 80 diameters; including one prepared object, two glass slips and a pair of brass forceps; in polished mahogany box.....\$6 00

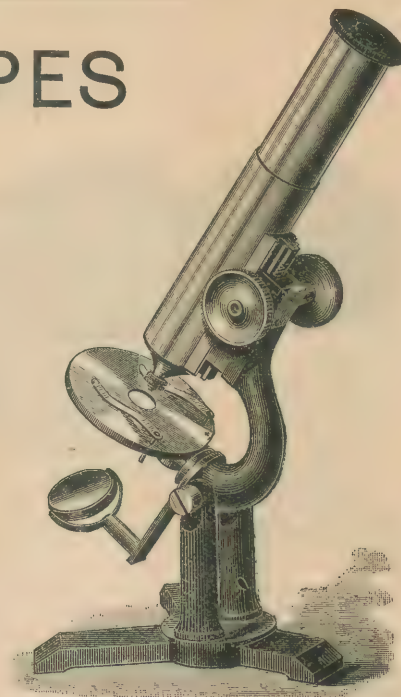


169

## American Concentric Microscope

The above with two eye-pieces, arranged with slot for micrometer objectives,  $\frac{3}{4}$  in. and  $\frac{1}{2}$  inch, camera lucida, eye piece micrometer, pliers, slides, covers, and improved glass stage and slide carrier, magnifying powers 35 to 485 diameters.

Price.....\$125 00  
" Same, binocular..... 150 00



170

## Library Microscope

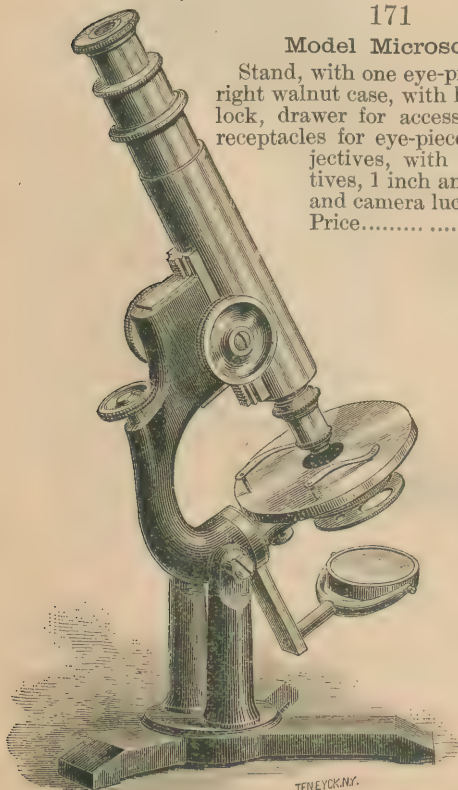
The above with two objectives 1 inch and  $\frac{1}{4}$  inch, and camera lucida, pliers slides and covers in a fine mahogany case.....\$45 00

171

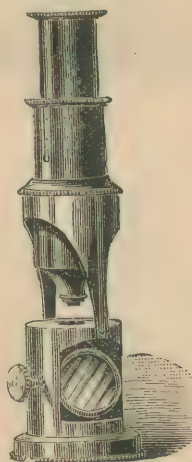
## Model Microscope

Stand, with one eye-piece in upright walnut case, with handle and lock, drawer for accessories, and receptacles for eye-pieces and objectives, with two objectives, 1 inch and  $\frac{1}{4}$  inch, and camera lucida.

Price.....\$45 00



171

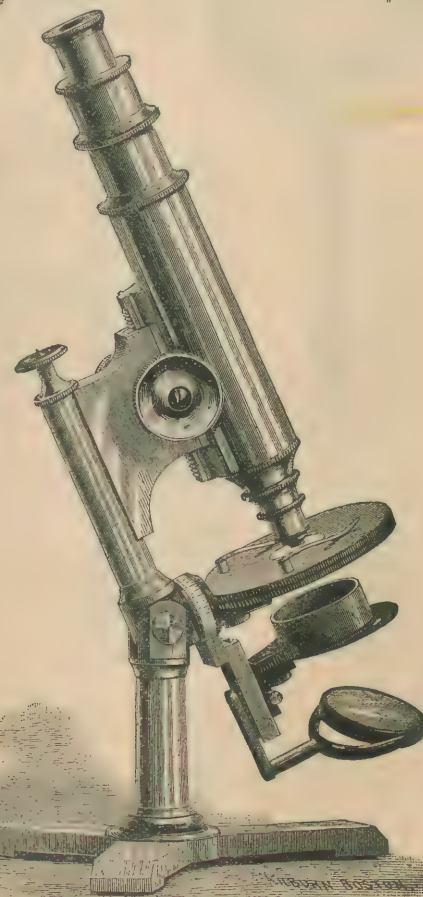


172

## Popular Microscope

Furnishes the most convenient, complete and powerful Microscope ever offered for the price. It is six inches high, made of highly polished brass, with a slide tube for adjusting the focus; one compound eye piece, one object glass, one mirror for illuminating; and has a power of fifty diameters, equaling 1000 times. Packed in a neat polished mahogany box, with one pair of brass tweezers, three mounted objects, and two pieces of plain glass.

Price .....only \$3 50



173

## Investigator Microscope

The above, with 2 eye-pieces A and C, the latter arranged with slot for micrometer; Objectives  $\frac{3}{4}$  inch and  $\frac{1}{2}$  inch, camera lucida, eye-piece micrometer, pliers, slides and covers, magnifying powers, 35 to 600 diameters and improved glass stage and slide carrier, in a fine mahogany case.....\$75 00



**Errata on page 16**

**No. 170, LIBRARY MICROSCOPE**

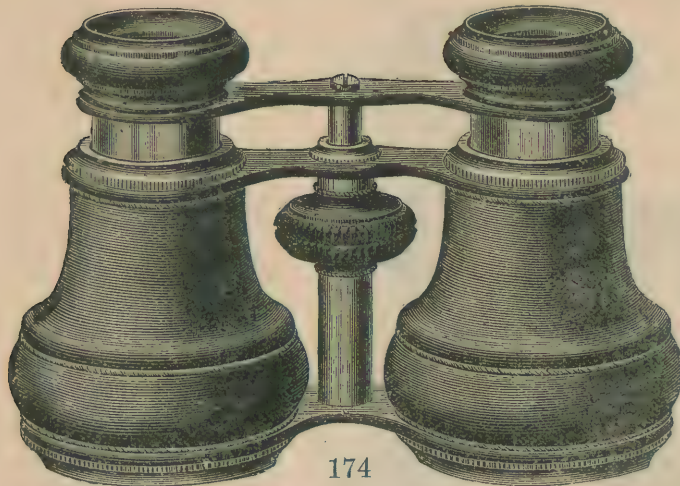
Above stand, in upright case, with handle, with one eye-piece, one  
achromatic doublet objective, one slide, with cell for fluids, plain slides,  
covers and one object, magnifying power from 25 to 125 diameters.

Price.....\$15.00

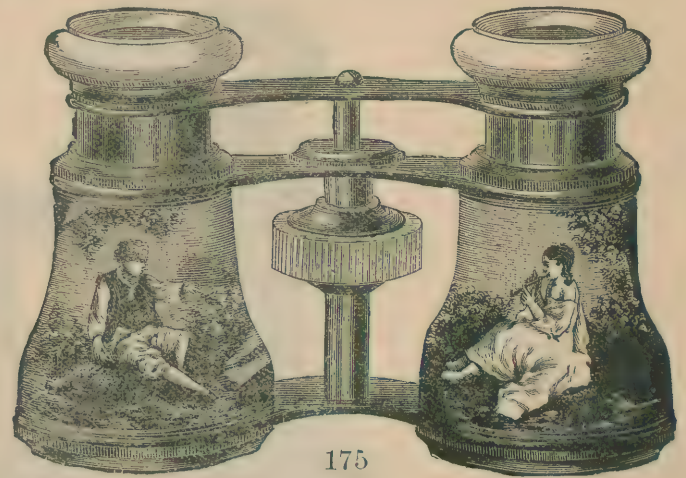




# OPERA GLASSES



Achromatic fancy leather Opera Glasses  
\$8 00 to 15 00

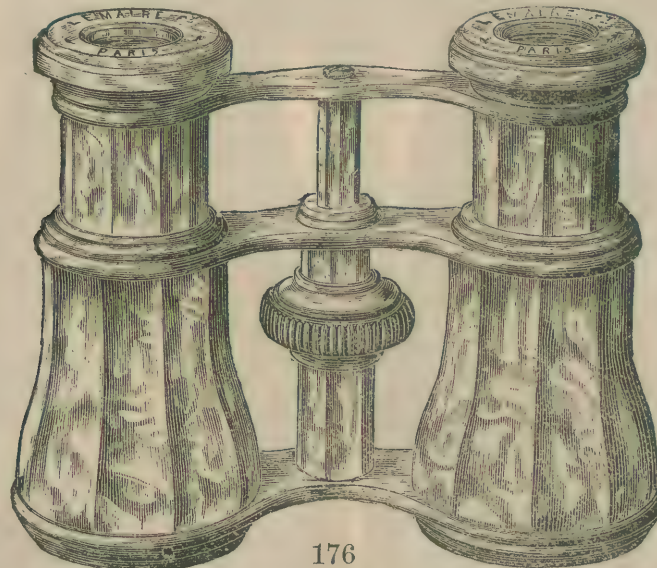


Achromatic enameled Opera Glasses, hand painted  
\$15 00 to 25 00

Aluminum Opera Glasses in great variety

Fine  
Opera Glasses  
from  
\$3 50 to 8 00

Every Glass warranted

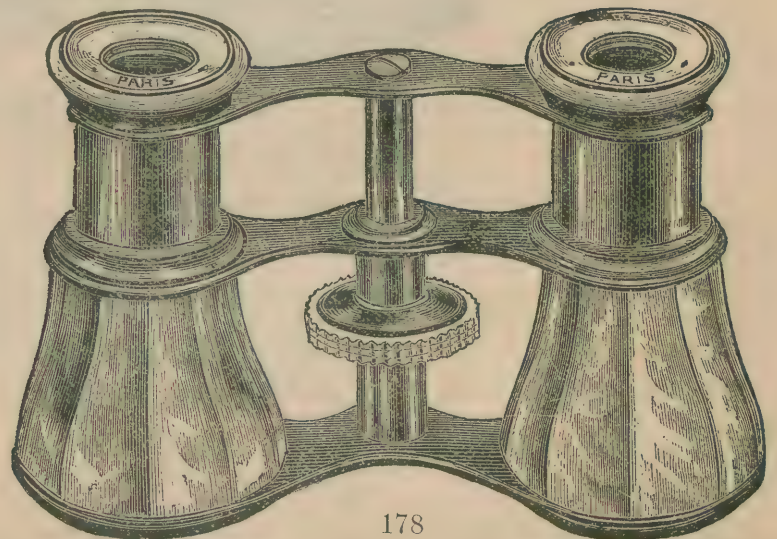


176  
All pearl Opera Glasses, \$35 00 to 50 00

Extra Fine  
Pearl and Fancy  
Opera Glasses  
from  
\$8 00 to 15 00



177  
Achromatic leather Opera Glasses, \$2 50 to 10 00 |



178  
Achromatic pearl and gilt Opera Glasses, \$6 50 to 20 00

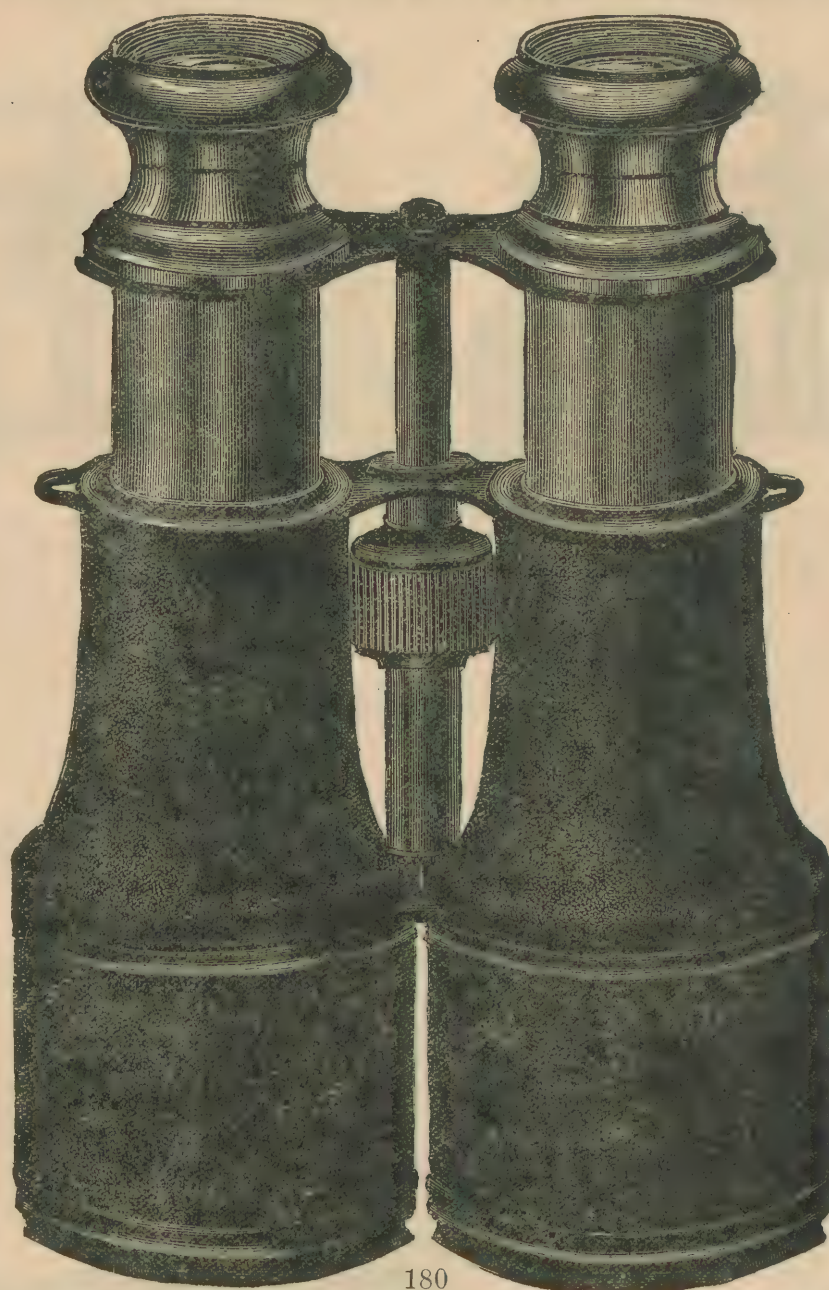


## FIELD AND MARINE GLASSES

*Field, Marine and Theatre*

183. Tourists' "Universal" (Glasses, black morocco body with sun-shades: three revolving oculars available for Marine, Field and Theatre purposes; black japanned draw-tubes, cross-bars, *low* tops and trimmings; in sole leather sling case; manufactured by Lemaire, Paris:

15	17	19	21	24	26 lignes
\$18.00	19.00	20.00	22.50	25.00	27.50

*The U. S. Signal Service Field Glass*

This Glass specially meets the requirements of the Cattle Men. It can be used on horseback with case, and the brands of cattle can be discerned 5 to 10 miles, according to the condition of the atmosphere, in a strong sewed leather case, water-proof and strap:

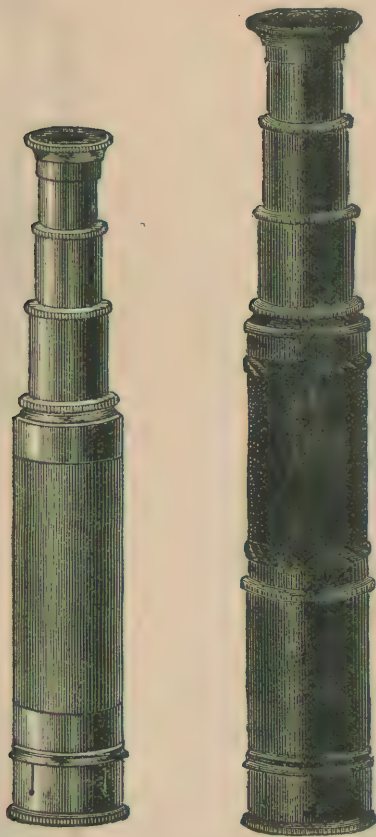
24	26 lignes
\$20.00	22.50
24	26 lignes
16.00	18.00

184. Field or Marine Glasses, black kid body with sun-shades, finely japanned or oxidized draw-tubes, cross-bars, tops and trimmings; in sole leather sling case:

		180							
185.	Field or Marine Glasses, as above, with <i>jointed</i> cross-bars, affording adjustment for pupillary distance, 26 lignes.....								\$28 00
186.	Field or Marine Glasses, black morocco body with sun-shades, black japanned or oxidized draw-tubes, cross-bars, tops and trimmings, in morocco sling case:	15	17	19	21	24	26	28 lignes	
		\$9.00	10.00	11.00	12.00	13.00	14.00	25.00	
187.	Field or Marine Glasses, as above with 12 lenses; sole leather case, 26 lignes.....								\$25 00
188.	Field or Marine Glasses, black morocco body with sun-shades, black japanned or oxidized draw-tubes, tops and trimmings; <i>jointed</i> cross-bars, affording adjustment for pupillary distance; in sole leather sling case:						24	26 lignes	
							\$21.00	22.50	
189.	Field or Marine Glasses, black morocco body with sun-shades, finely black japanned or oxidized draw-tubes, cross-bars and <i>low</i> tops, compact model, designed to afford large field, in morocco sling case:	15	17	19	21	24	26 lignes		
		\$11.00	12.00	13.00	14.00	15.00	16.00		
190.	Field or Marine Glasses, black morocco body, black japanned draw-tubes, cross-bars, tops and trimmings; in morocco sling case;	15	17	19	21	24	26	28 lignes	
		\$4.50	5.00	5.50	6.00	7.00	8.00	15.00	
191.	Field or Marine Glasses, black morocco body, black oxidized draw-tubes, cross-bars, <i>low</i> tops and trimmings; in morocco sling case:				21	24	26 lignes		
					\$9.00	10.50	12.00		
192.	Field or Marine Glasses, with <i>non-corrected</i> objectives; black morocco body; black japanned draw-tubes, cross-bars, tops and trimmings; in morocco sling case:				21	24	26 lignes		
					\$4.50	5.00	5.50		



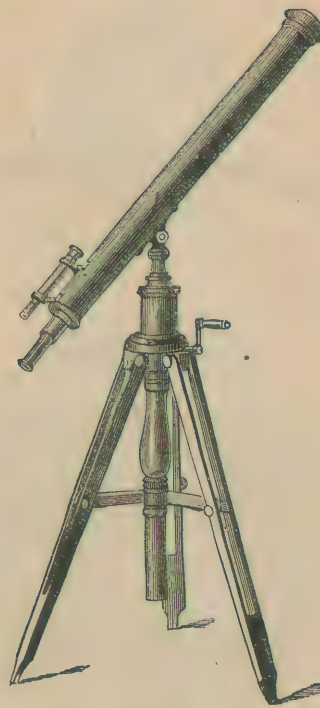
## SPY-GLASSES AND TELESCOPES



193

 $\frac{1}{2}$  natural size.

194

 $\frac{1}{2}$  natural size.

195

Astronomical Telescopes  
From \$75 00 to \$500 00

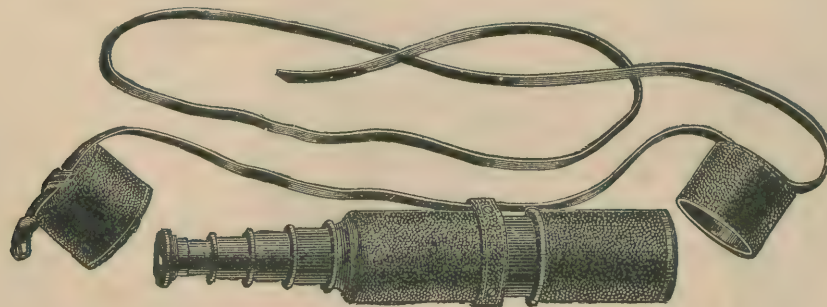
196



197

 $\frac{1}{2}$  natural size.

193	Brass Body, morocco covered,	10"	12"	13"	14"	16"	19"	lignes diam.
		\$3 50	\$4 00	\$4 50	\$5 00	\$7 00	\$9 00	
194	" " with sunshade,	12"	14"	16"	19"	22"	25"	lignes diam.
		\$5 00	\$6 00	\$8 00	\$10 00	\$20 00	\$30 00	
196	Marine Telescope " " "	16"	19"	22"	25"	27"	lignes diam.	
		\$8 00	\$11 00	\$14 00	\$30 00	\$40 00		
197	Brass Body, twine covered	10"	12"	13"	14"	16"	19"	lignes diam.
		\$3 50	\$4 00	\$4 50	\$5 00	\$7 00	\$9 00	



198

Tourists' Telescopes

Superior, leather covered body, with sunshade, leather caps and straps, highly burnished brass or oxidized draw tubes.

Length when closed 6 to 11 inches, when open 17 to 36 inches, according to size, \$15 00, 18 00, 20 00, 22 00

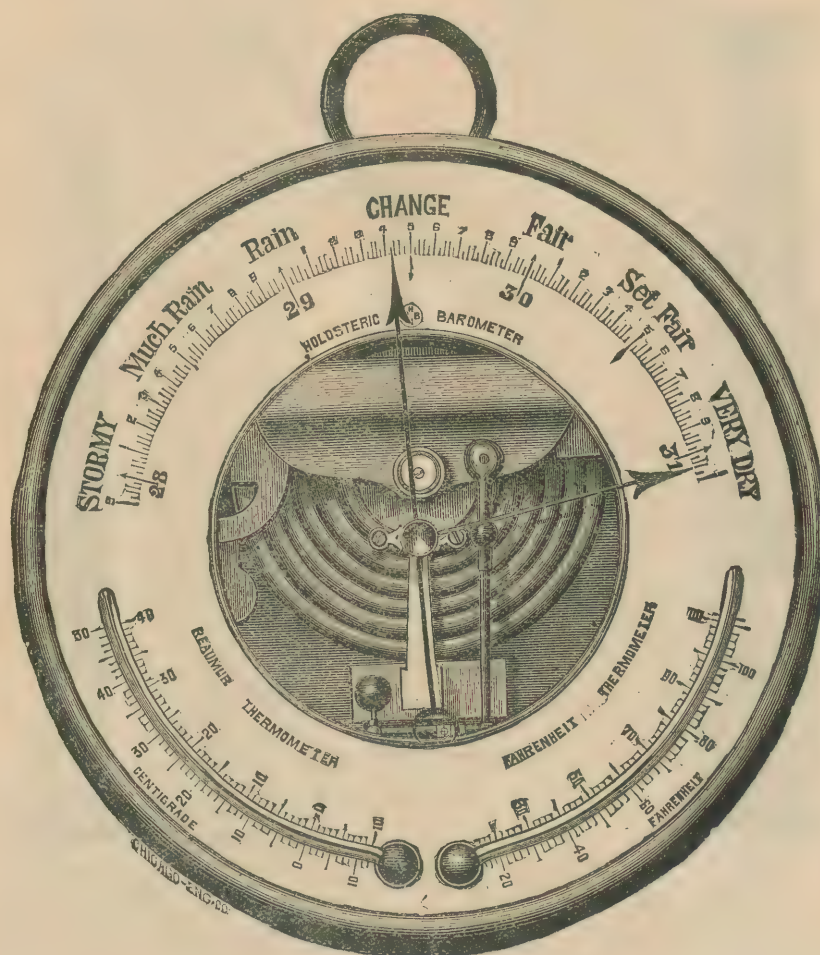
Tripods for Telescopes, hard wood, good finish .....\$5 00, 8 00



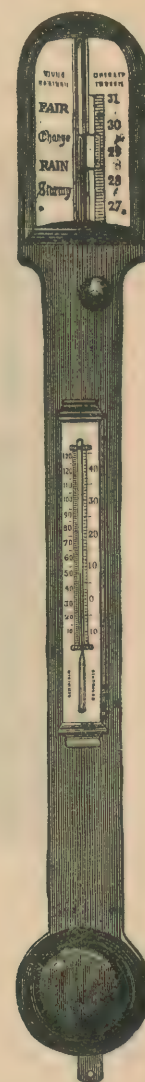
## ANEROID AND MOUNTAIN BAROMETERS



199  
Standard Barometer  
Fortin System  
\$110 00



200  
Aneroid Barometers in great variety from \$5 00 to \$30 00



201  
Mercurial Barometer  
with Thermometer  
\$10 00 to \$50 00



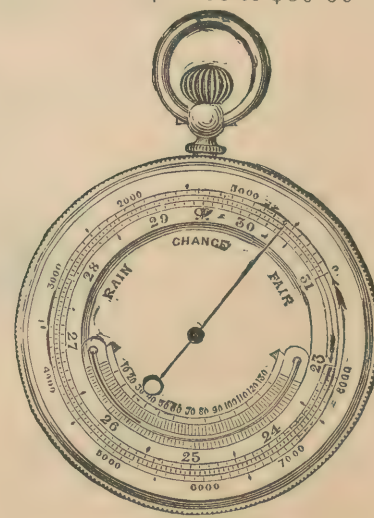
203  
Engineers' Mining and Altitude  
Barometers from \$30 00 to \$80 00



202  
Universal Barometer  
warranted accurate  
Price, \$7 50



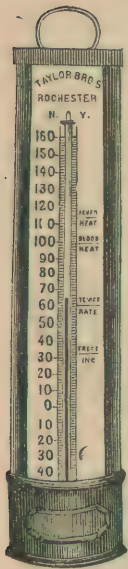
204  
Carved Oak Barometers  
\$25 00 to \$50 00



205  
Altitude Barometers  
from \$10 00 to \$50 00



THERMOMETERS, HYDROMETERS, SACCHAROMETERS, PYROMETERS and all Instruments used by  
Coal Oil Dealers, Brewers, Distillers and Dairymen



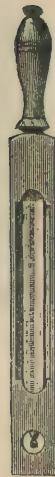
206

Tin Thermometers  
7 to 12 inches  
from \$.25 to 2.50



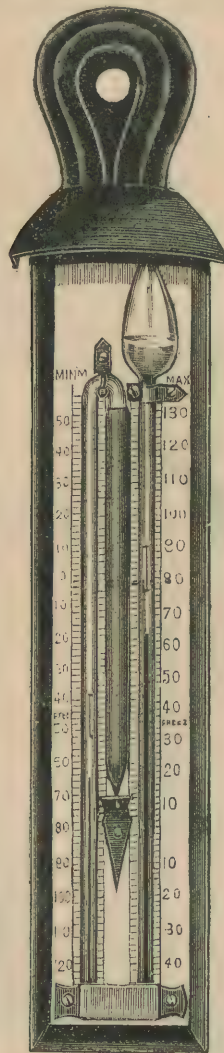
207

Incubator  
Thermometer  
\$.75



208

Bath Thermometer  
glass in wood  
\$1.00 to 1.25



209

Six's Self-regis-  
tering Thermometer  
Boxwood scales \$5.00  
Porcelain " 8.50



210

Metal Dairy  
Scales  
\$.75



211

Porcelain on Oak  
or Ebony backs  
\$3.00 to 5.00



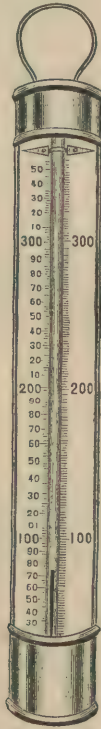
212

English Self-regis-  
tering Thermo.  
Opal scale with  
bracket revolving  
14 inch, \$16.50



213

Glass Cylindrical  
Thermometers  
\$.75 to 1.00



214

Brewers and Con-  
fectioners in cop-  
per scale to 400°  
\$3.50



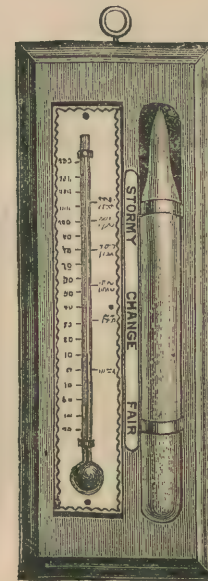
215

Glass Dairy  
Thermometer  
\$.75



216

Weather House  
\$1.50



217

Storm Glasses  
\$.75



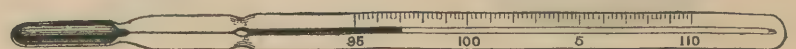
218

Masons' Hygrometer  
Boxwood scale...\$6.00  
Opal " ...10.00



219

Maximum and Minimum Thermometer in sets of two...\$6.50



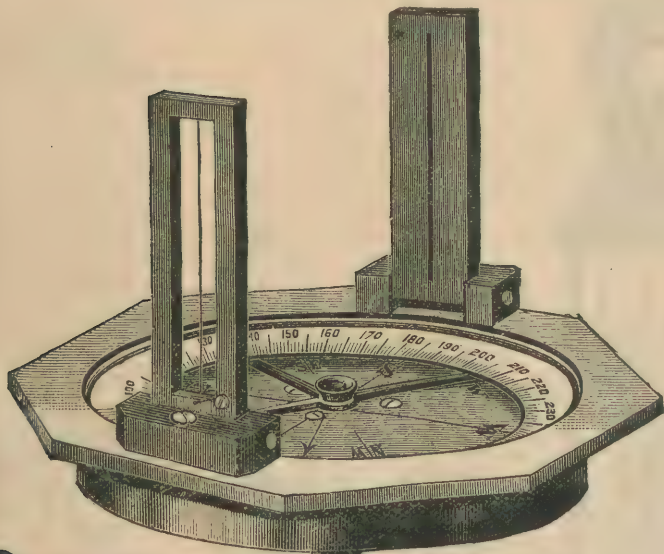
220

Clinical or Fever Thermometers  
Patent Lens Front, Indestructible Index, (Hicks') 4 or 5 inch...\$3.50



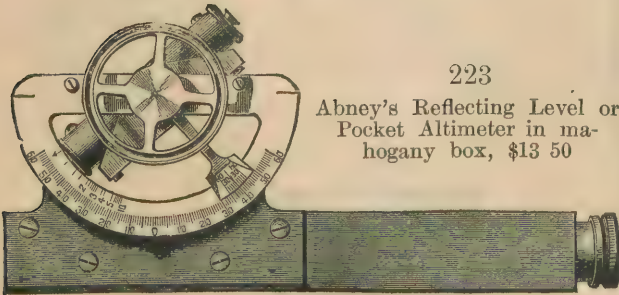
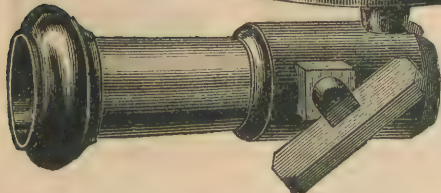
# COMPASSES

For Surveyors, Miners, Geologists, Engineers and Mariners in great variety.



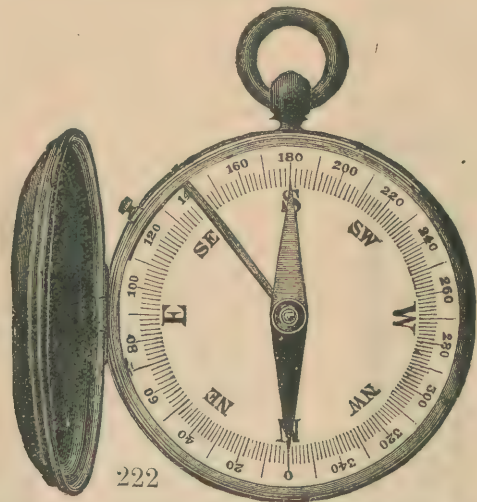
221

Pocket surveying compasses with folding sights, from \$6 00 to \$25 00



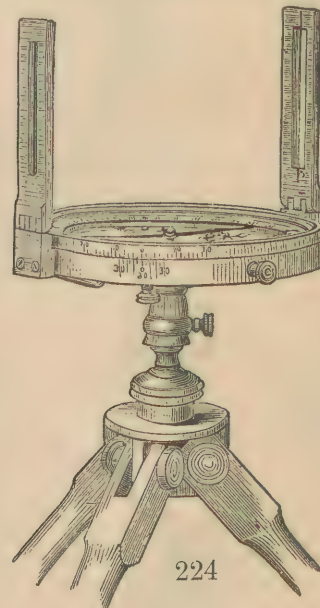
223

Abney's Reflecting Level or Pocket Altimeter in mahogany box, \$13 50



222

Pocket Compasses with hinged covers in nickel or brass, from 75c. to \$5 00



224

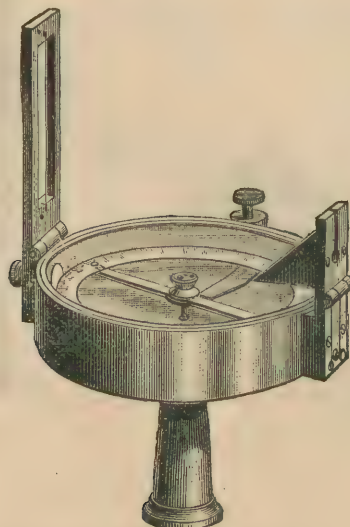
U. S. Surveying Compass, with two bubbles folding sights, ball and socket joint for Jacob Staff mountings, with vernier.

3½ inch, \$21 00 4½ inch, \$25 00



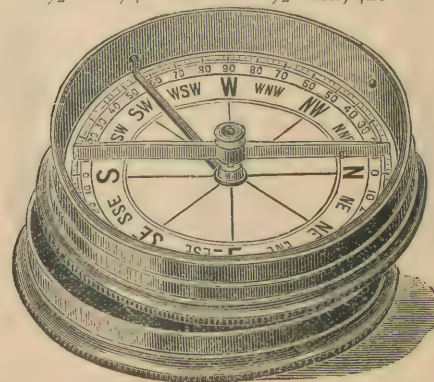
225

Pocket Compasses in nickel or brass, from 25c. to \$3 00



226

Prismatic Compass, with floating metal dial and socket for Jacob Staff, in mahogany case.....\$15 00



227

Heavy case, nickel or brass, finest English bar needle, jeweled, full divisions, sizes 1½ to 3 inches. From \$3 00 to \$6 00



## Electric Batteries, Magic Lanterns, Surveyors' Chains and Instruments, Pedometers



228

Engineers' and Surveyors' Chains, in steel or iron,  
33, 50, 66 and 100 ft. long from \$2 50 to \$15 00



229

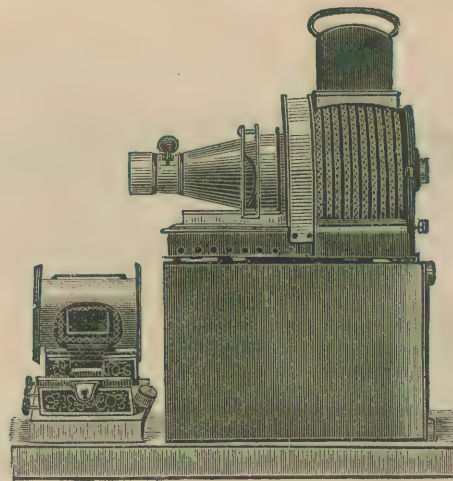
Chesterman and Rabone Tapes, steel  
or metallic, 50, 66, 75 and 100  
ft. from \$3 00 to \$15 00



230

*Parlor Kaleidoscope*

This instrument will afford an incalculable  
amount of amusement to old as well as young,  
and may be of great service to designers in  
many fields, through the infinite variety of  
patterns it would suggest.....\$3 00



231

*Magic Lanterns*

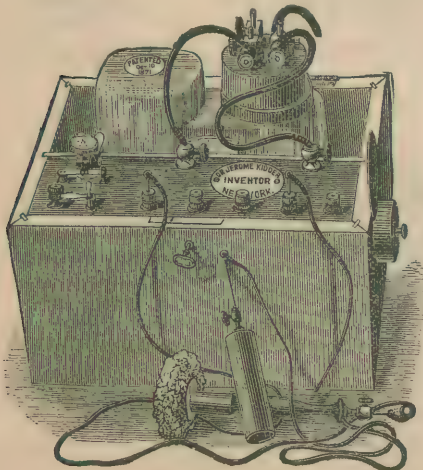
From \$2 50 to \$100 00

With fine views, colored and uncolored, illustrating  
all lands and every branch of Natural History, Physical  
Science, Temperance Lectures, Bible Studies, Comic  
and Amusing Anecdotes and Fairy Tales.



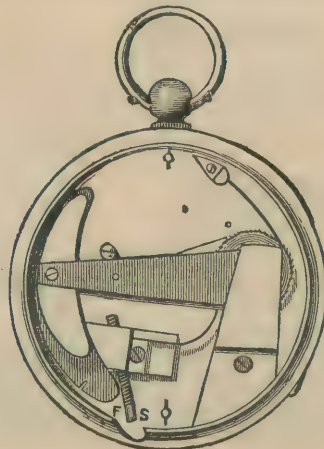
232

Rain Gauges of various patterns  
and makes from \$3 50 to \$15 00



233

A large assortment of Dr. Kidder's Gaiffe,  
Omnia and Fleming Batteries on hand at  
the cheapest market prices.



Back



Front

234

Pedometers are pocket instruments for measuring the distance traversed in walking—the  
number of miles being registered by a mechanism, inclosed in a nickel-plated watch casing,  
and operated by the motion of the body. Directions accompany each instrument.  
Prices from \$5 00 to \$15 00



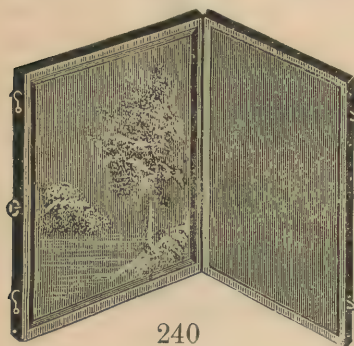
# Sand Glasses, Batteries, Magnets, Prisms, Odometers, Etc.



235

Sand Glasses

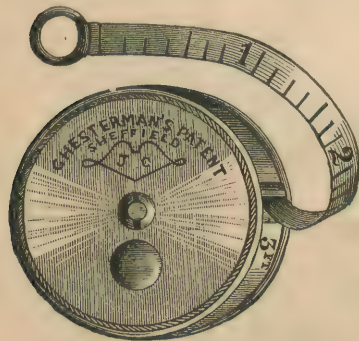
3 15 30 and 60 min.  
25c \$1 00 1 25 1 75



240

Claude Lorraine Mirror

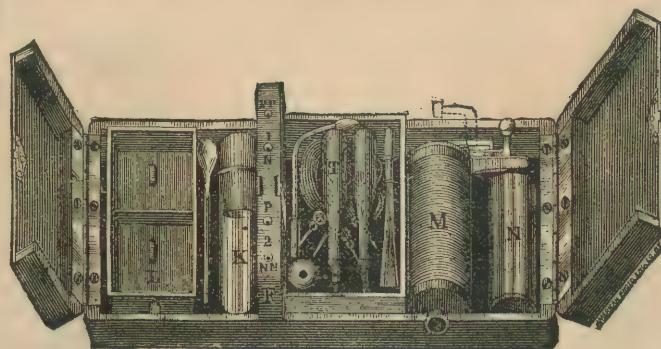
An ingenious device for view-  
ing landscapes in perspective  
3 sizes, \$5 00, 8 00, 10 00



243

Chesterman's Pocket Tapes  
in steel or metallic

divided metres and inches  
3, 5 and 6 ft. from \$1 50 to 4 00



236

Gaiffe Batteries, single and double

\$8 00, 10 00, 15 00



238

Pocket Levels, mounted in brass or nickel

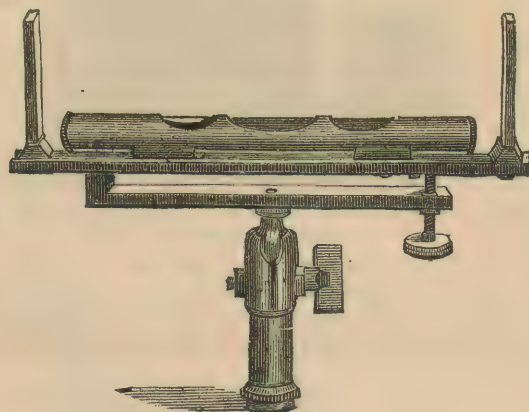
\$1 00, 1 75, 2 00 and 2 50



239

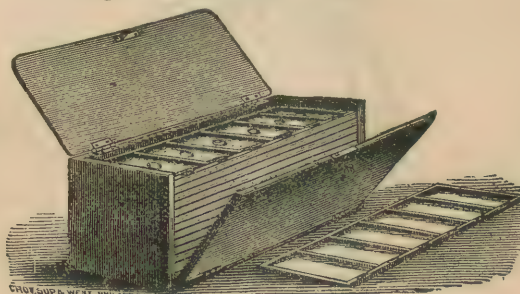
Equilateral Prism, with cut handles

75c, \$1 00, 1 50



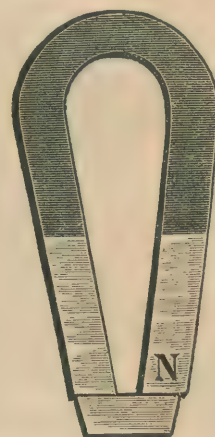
241

Drainage Level, mounted in brass with  
sights and Jacob Staff, \$7 50



244

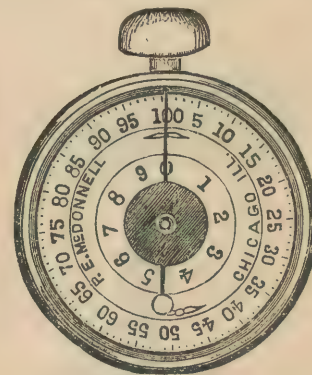
Microscopic Object Cabinets, in white wood and  
mahogany, from \$1 50 to 8 00



237

Horseshoe Magnets

all sizes 2 to 12 inches  
from 10c to \$3 50



242

Tally Register

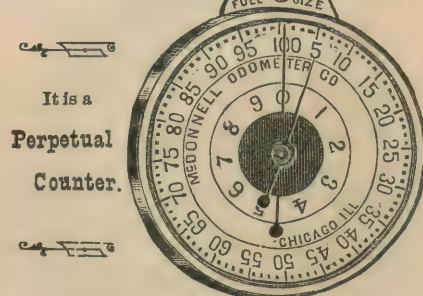
For counting or tallying cattle,  
sheep, coal or wheat. A useful  
instrument for freight clerks, etc.

Price, \$3 50

## How Many Miles Do You Drive?

THIS LITTLE  
**INSTRUMENT**  
WILL TELL.

PUT ON AN  
**ODOMETER**  
AND SEE!



It is a  
**Perpetual  
Counter.**

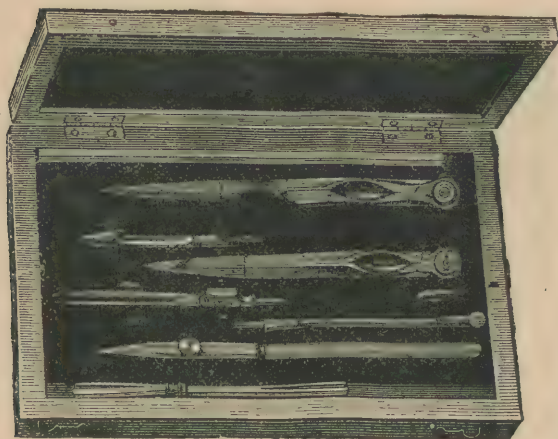
It gives 1-100 part of a mile, and as high as 1,000.  
Cannot be tampered with. Is water and dust tight.  
Made for any size wheel. Is easily attached to the  
Wheel of a **Buggy, Carriage, Wagon**, or  
other vehicle. **Invaluable** to Livemen, Phy-  
sicians, Farmers, Surveyors, Stage Owners, Pleas-  
ure Drivers, etc. **Price \$5** (one-third the price  
of any other Odometer). When ordering give di-  
ameter of the wheel. Sent by mail postpaid on re-  
ceipt of price.

245



## DRAWING INSTRUMENTS

We keep the largest and most complete stock on the Pacific Coast



246

School set, mahogany case, containing 10 pieces..\$1 00  
A large variety of school sets of all grades from  
25c to \$5 00



247

Superior German Instruments in velvet lined  
morocco pocket cases, from \$3 50 to \$20 00.

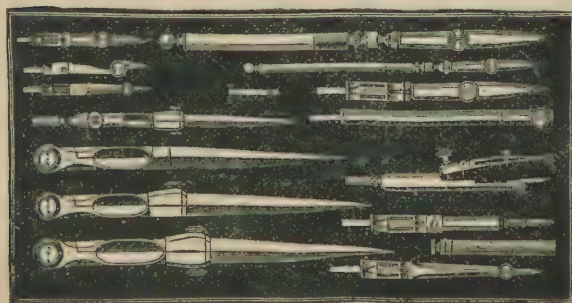
WE KEEP A  
**Complete Assortment**  
—OF—  
**J. KERN'S**  
**SUPERIOR SWISS**  
**Instruments**



248

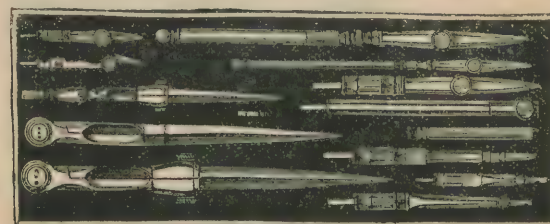
Rosewood Case with lock and key, containing 15 pieces, in brass, \$7 50; in German silver \$10 00  
Send us your orders from any catalogue, and we will fill them correctly; at the same prices

WE KEEP A  
**Complete Assortment**  
OF THE BEST  
**GERMAN and FRENCH**  
**Instruments**



249

Walnut Case with lock and key, containing 18  
pieces of superior German silver instruments of the  
best finish.....\$15 00



250

Walnut Case with lock and key containing 16 pieces  
of superior German silver instruments of the best  
finish.....\$10 00



## LOOSE DRAWING INSTRUMENTS

Of French, German and Swiss Make

Plain Dividers  
from 25c to \$4.00

—  
Hair Dividers  
from  
\$2.00 to \$4.00

—  
Compasses  
with Pen, Pencil  
and Needle Points  
3½ in., \$3.00

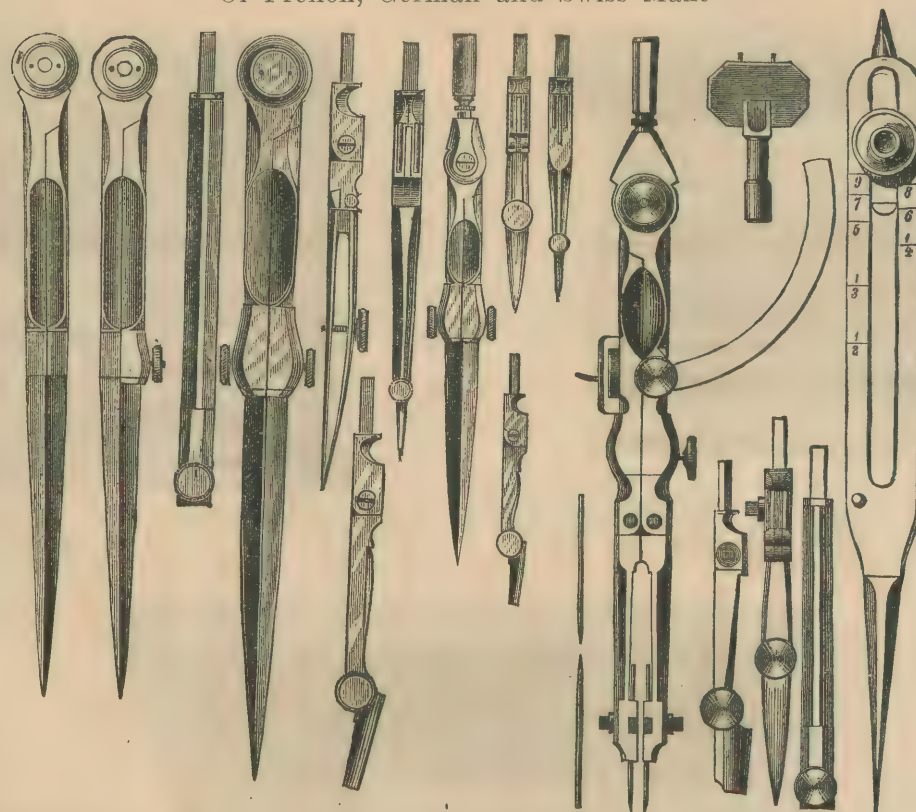
—  
Lithographers'  
Sets, in Fine Ger-  
man Silver, 8 in.  
\$13.50

Proportional  
Dividers  
from  
\$2.50 to \$15.00

—  
Steel Spring  
Dividers, Bow  
Pens and Pencils  
from  
\$1.25 to \$5.00

—  
Beam Compasses  
from  
\$4.50 to \$7.50

—  
Hatching Pens  
from  
\$1.50 to \$3.00



251

251½

OUR INSTRUMENTS ARE UNEQUALED IN THEIR UNIFORM QUALITY OF WORKMANSHIP AND BEAUTY OF FINISH

Drawing Pens  
4, 5 and 6 ins.  
from  
20c. to \$2.00

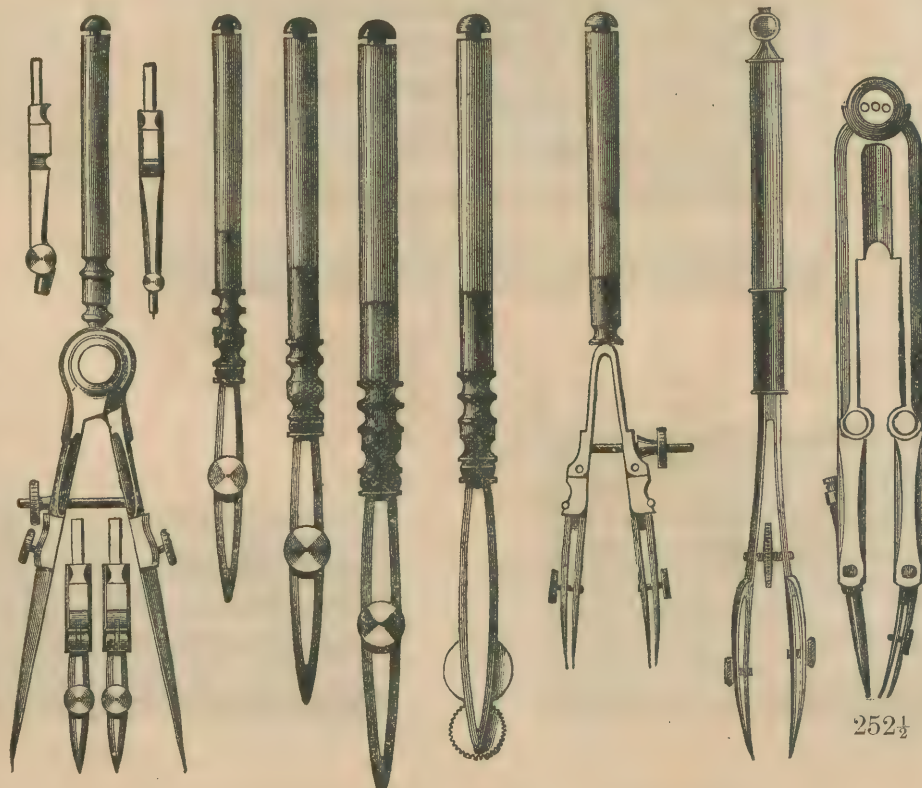
—  
Border Pens  
Curve Pens  
Rail Road Pens  
Dotting Pens

—  
Spring Bow  
Dividers  
with 2 Pen Points  
Pencil and Needle  
Points

Folding Pocket  
Compasses  
from  
\$5.50 to \$10.00

—  
Dotting Pens  
with 1 wheel, 5 in.  
\$1.00

—  
Dotting Instru-  
ment of German  
silver, in Morocco  
Case, with 6 extra  
wheels,  
Price, \$3.75



252

252½

A LARGE ASSORTMENT OF ALTENER'S PATENT JOINTED DRAWING INSTRUMENTS



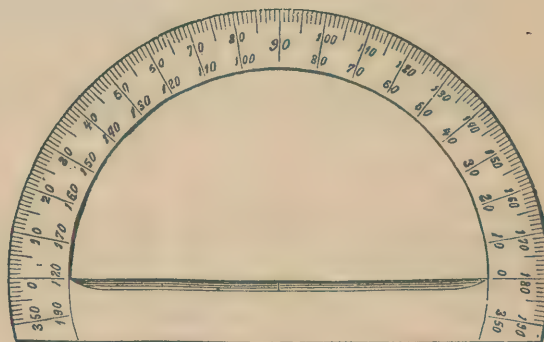
PROTRACTORS, CURVES AND RULES



253

Semicircular German-silver Limb Protractor, 6 in. divided to  $\frac{1}{4}^\circ$  with arm and vernier reading to three minutes.

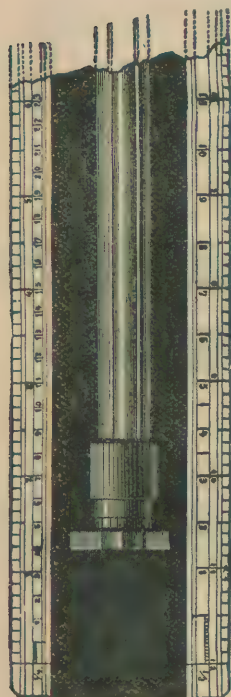
Price .....\$10 50



254

German-silver, Brass or Horn Protractors from 4 to 8 inches divided to  $\frac{1}{4}^\circ$ .

Prices .....from 15c to \$3 00

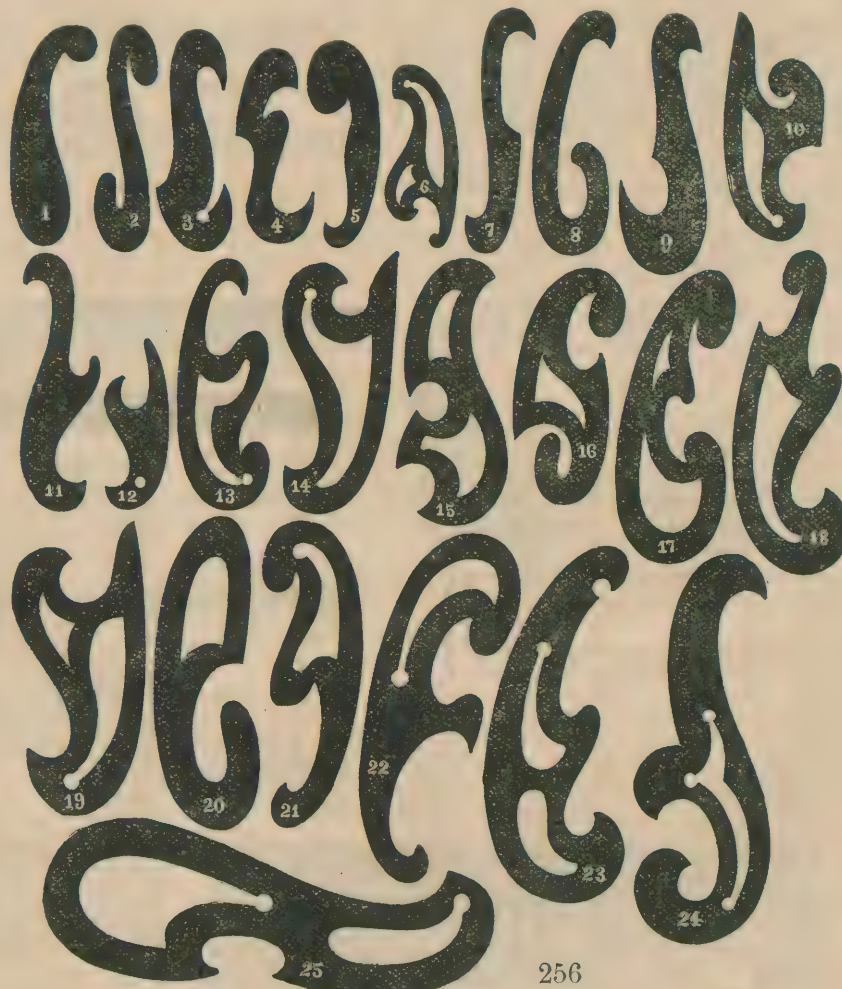


255

Rolling Parallel Rules divided on ivory edges.

9in. 12in.

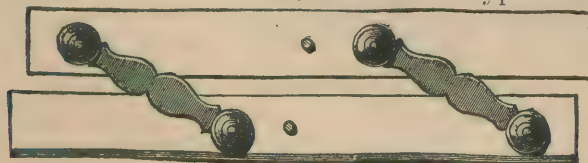
\$3 50 \$4 50



256

Irregular Curves in Rubber or Maple Wood

Coach Builders Curves, Parabolic, Hyperbolic, Elliptic, Railroad and Ship Curves in Hard Rubber or Wood at special rates.



258

258

Parallel Rules in ebony, brass bars.

6in.	9in.	12in.	15in.	18in.
25c.	50c.	75c.	\$1 00	\$1 25



257

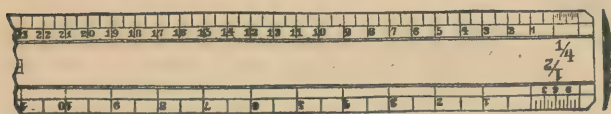
Rolling Parallel Rules Ebony, brass mounted.

9in. 12in. 15in.

\$2 50 \$2 75 \$3 50

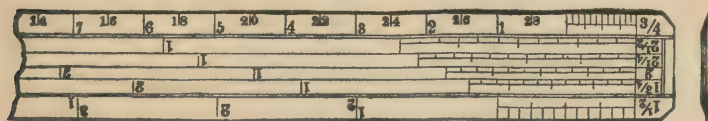


## SCALES AND RULES



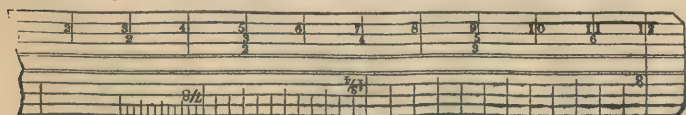
259

Flat Scale 12 in., div.  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1 inch to the foot.  
Ivory.....each \$3 00 Boxwood.....each \$1 50



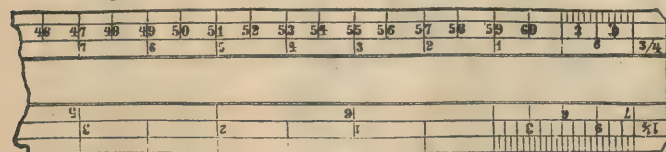
261

Flat Universal Scale, 12 inch.  
One side divided,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1,  $\frac{5}{16}$ ,  $\frac{3}{8}$ ,  $1\frac{1}{4}$ ,  $2\frac{1}{2}$  } Inch to  
Other " "  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $1\frac{1}{2}$ , 3,  $\frac{1}{4}$ ,  $1\frac{3}{4}$ , 2, 4 } the foot  
Ivory.....\$3 00 Boxwood..... \$1 50



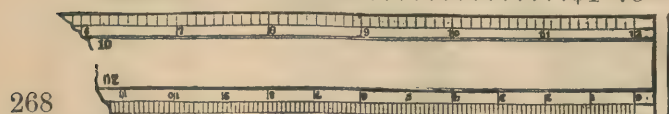
263

Flat Universal Scale 12 in., all scales brought to the edge.  
One side divided,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1,  $\frac{3}{16}$ ,  $\frac{3}{8}$ ,  $\frac{3}{4}$ ,  $1\frac{1}{2}$  } Inch to  
Other " "  $\frac{5}{16}$ ,  $\frac{5}{8}$ ,  $1\frac{1}{4}$ ,  $2\frac{1}{2}$ ,  $\frac{7}{16}$ ,  $\frac{7}{8}$ ,  $1\frac{3}{4}$ ,  $3\frac{1}{2}$  } the foot  
Ivory.....\$3 00 Boxwood.....\$1 50



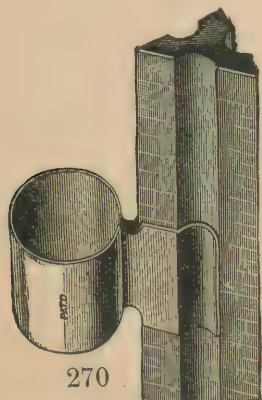
265

Flat Scale, 12 in., beveled and divided on both sides,  
divided,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $1\frac{1}{8}$ ,  $\frac{3}{4}$ ,  $1\frac{1}{2}$ , 3 inch to the foot.  
Boxwood.....\$1 75



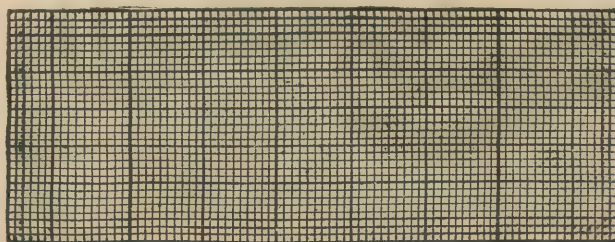
268

Flat Chain Scales, 12 in., divided 10x50, 20x40 or 30x60  
parts to the inch.  
Ivory.....\$4 00 Boxwood..... 1 50



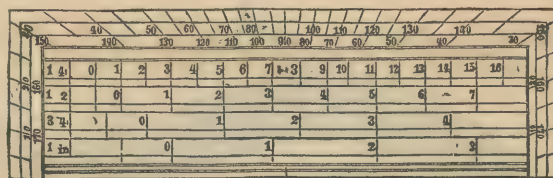
270

Triangular Scale Guard 25c. each.



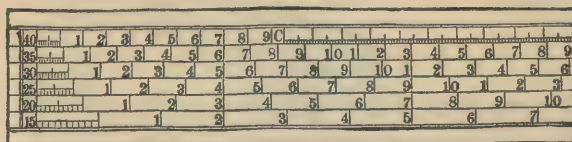
271

Profile, Cross Section, Drawing, Detail and Blue  
process paper always in stock.



260

Protractors, in horn, Boxwood and Ivory from  
50c. to \$15 00.



262

Plotting Scale, 6 in.  
Ivory.....\$ 75 Boxwood.....\$ 25



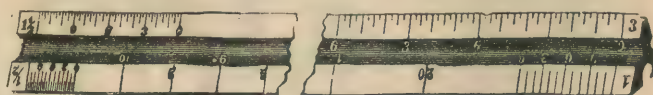
264

Sectors, 6 in., opens to 12 in.  
Ivory.....\$2 25 Boxwood.....\$1 00



266-7

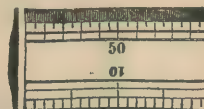
Straight Edges in Pearwood, Hardwood, Rubber,  
Mahogany and Steel, from 25c. to \$15 00.



269

Triangular Boxwood or Metallic Scales for Archi-  
tects or Engineers.

Boxwood, {	6 in.	12 in.	18 in.	24 in.
	\$1 50	\$2 00	\$3 00	\$5 00
Metallic, {	12 in.	\$3 00		



272

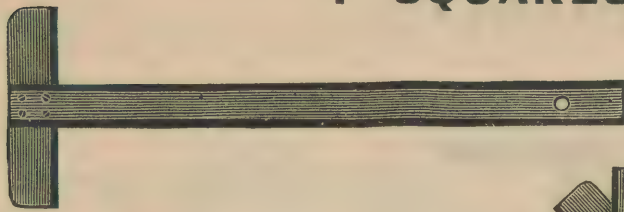
Flat Box, off-  
set scale 2 and 3  
inch to match  
No. 268, 60c and  
75c.



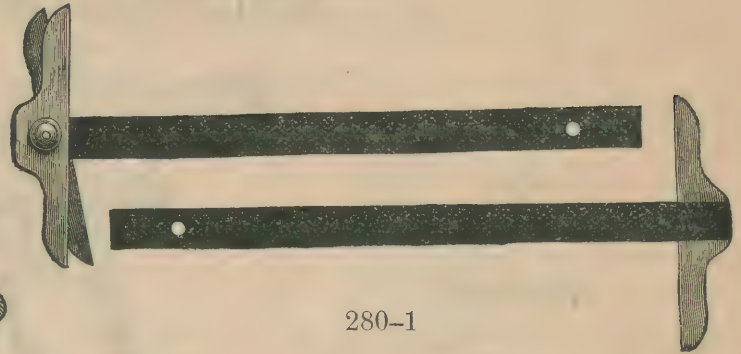
273

Thumb Tacks  
and Horncentres.

## T SQUARES AND TRIANGLES



278-9



280-1

		18	24	30	36	42 inch
274	Cherry wood fixed head.....	\$0 35	.45	.55	.65	.75
		18	24	30	36	42 inch
275	" " shifting head.....	\$0 75	.90	1 00	1 10	1 25
		18	24	30	36	42
276	Maple Blade, fixed walnut head....	\$0 40	.50	.60	.70	.80
		18	24	30	36	42
277	" " shifting walnut head..	\$0.85	1 00	1 15	1 30	1 45
		24	30	36	42	48
278	Mahogany Ebony Edges, fixed head..	\$1 00	1 25	1 50	1 75	2 00
		24	30	36	42	48
279	" " " shifting head	\$1 75	2 00	2 25	2 50	2 75
		18	24	30	36	42 inch
280	Hard Rubber Blade, fixed walnut head.....	\$1 00	1 50	2 00	2 50	3 00
		18	24	30	36	42 inch
281	" " " shifting walnut head....	\$1 50	2 00	2 50	3 00	3 50

## IMPROVED TRIANGLES, WITH INTERLEAVED OPEN CENTERS BOUND BY ALTERNATING LININGS OF HARD WOOD

Angles, 30°x60°x90°

	5	6	7	8	9	10	11	12 inch
282	\$0 30	.35	.40	.45	.50	.55	.60	.65

Angles, 45°x45°x90°

	5	6	7	8	9	10	11	12 inch
283	\$0 35	.40	.45	.50	.55	.60	.65	.75



## TRIANGLES OF MAHOGANY, WITH OPEN CENTERS, EBONY EDGES, AND MORTISED CORNERS

284	Angles, 30°x60°x90°	5	6	7	9	11	13	15	18 inch
		\$0 35	.45	.50	.60	.75	1 00	1 25	1 50
285	Angles, 45°x45°x90°	5	6	8	10	12	14	16	18 inch
		\$0 45	.50	.60	.75	1 00	1 25	1 50	1 75

## TRIANGLES OF MAPLE OR CHERRY WOOD, SOLID

286	Angles, 30°x60°x90°	5	6	7	8	9	10 inch
		\$0 10	.10	.10	.15	.15	.15
287	Angles, 45°x45°x90°	5	6	7	8	9	10 inch
		\$0 10	.10	.15	.15	.15	.20

## TRIANGLES OF MAPLE OR CHERRY WOOD, WITH OPEN CENTERS AND MORTISED CORNERS

288	Angles, 30°x60°x90°	5	6	7	8	9	10	11	12	13	14	15 inch
		\$0 20	.20	.20	.25	.25	.35	.35	.40	.50	.60	.70
289	Angles, 45°x45°x90°	5	6	7	8	9	10	11	12	13	14	15 inch
		\$0 20	.20	.25	.30	.35	.35	.40	.50	.60	.70	.80

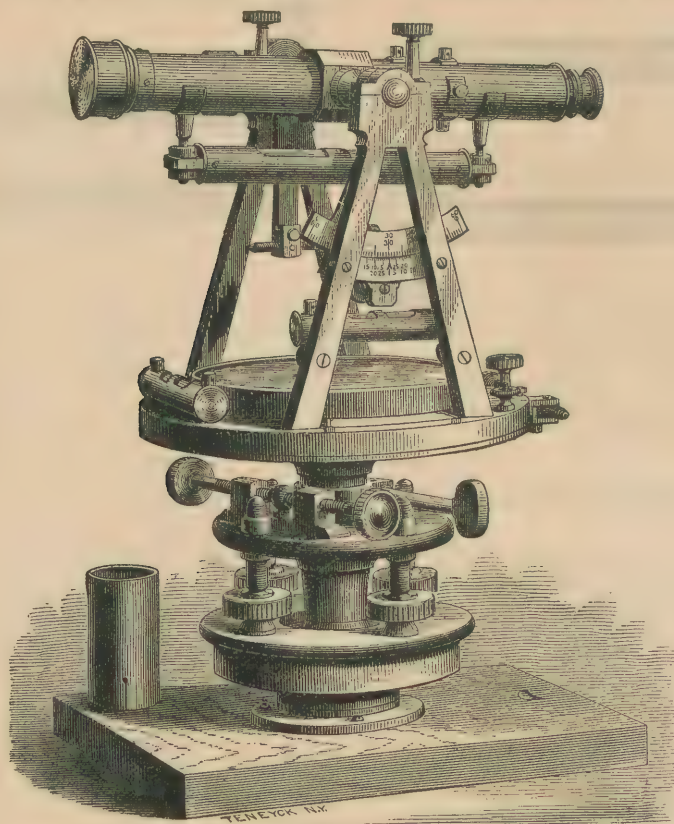
## TRIANGLES OF HARD RUBBER, OPEN CENTERS, THICK

290	Angles, 22½°x67½°x90°	3	4	5	6	7	8	9	10	11	12	13	14	15	16 inch
		\$0 15	.20	.25	.30	.35	.40	.45	.55	.65	.75	.90	1 10	1 25	1 50
291	Angles, 30°x60°x90°	3	4	5	6	7	8	9	10	11	12	13	14	15	16 inch
		\$0 15	.20	.25	.30	.35	.40	.45	.55	.65	.75	.90	1 10	1 25	1 50
292	Angles, 45°x45°x90°	3	4	5	6	7	8	9	10	11	12	13	14	15	16 inch
		\$0 25	.30	.35	.40	.45	.50	.60	.70	.85	1 00	1 20	1 40	1 60	1 80



## ENGINEERS' TRANSITS

\*\*\*  
Mining  
Mountain  
and  
Reconnaissance  
Instruments  
\*\*\*



293

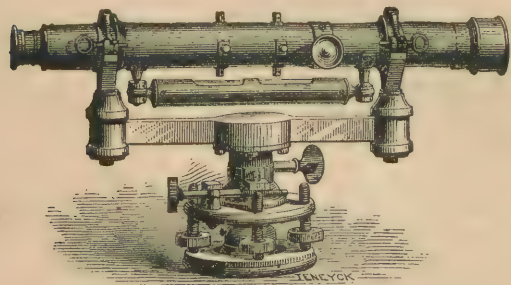
Transit, having long sensitive *ground* spirit-level to telescope, with attached graduated silver scale (not shown in illustration); clamp and tangent-motion to telescope-axis; vertical arc of 60° and vernier, *divided on silver*, reading to one minute; complete .....\$205 00

\*\*\*  
Engineers'  
and  
Surveyors'  
Supplies  
\*\*\*

\*\*\*  
Chains  
POLES  
and  
Leveling  
Rods  
\*\*\*

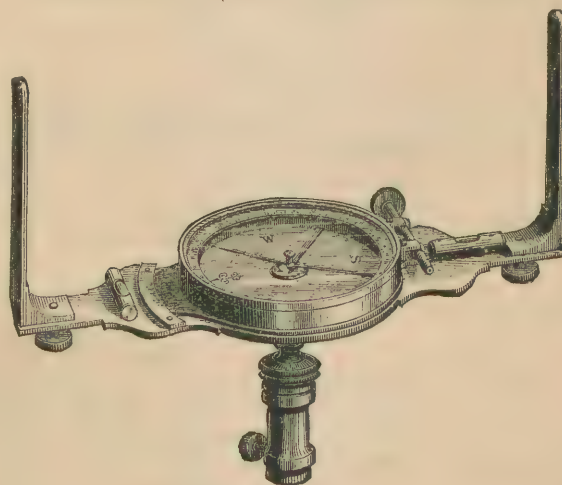
## SURVEYORS' COMPASSES

## Engineers' Leveling Instruments



294

Leveling Instrument, with 15-inch telescope, the latter *achromatic* and erecting, the instrument not permitting of its separation from the leveling screws, thus avoiding the so frequent bruising of the center; fitted whole and erect, in fine mahogany case, with strap, lock and key; complete, with tripod of best construction .....\$100 00



295

Surveyor's Compass, 4½-inch magnetic needle, with agate center and stop; silvered dial, with engraved cardinal points, and raised ring divided in quadrants, 0° to 90°; silvered vernier reading to single minutes, with tangent adjustment; detachable sights, mounted 14 inches apart; two 2-inch sensitive *ground* spirit-levels; improved ball and socket for Jacob staff, in fine mahogany case, with strap, lock and key.

Price .....\$45 00

## PHOTOGRAPHIC APPARATUS AND SUPPLIES

## THE IDEAL Reversible Back Camera

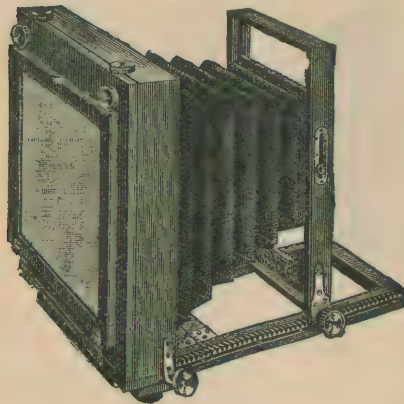


Fig. 1



Fig. 2

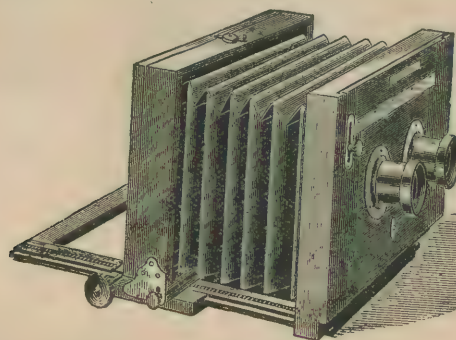
The Ideal Camera is pronounced by all to be one of the best view cameras ever placed on the market. It is the result of much study and many experiments, made with the view of producing an instrument combining all the qualities required in a View Camera for the professional or amateur photographer.

It is made from selected Honduras mahogany, finished in the best possible style, and has all latest improvements. We have spared no pains to make every working point as near perfect as possible. The camera box is square, the back being reversible, so that when a view be wanted either horizontally or vertically on plate, the change can be effected in five seconds by simply reversing the back instead of the entire camera box. It has rack and pinion focusing movement, the front moving forward, leaving the back always stationary. When the focus has been obtained, the front is clamped by simply turning an independent milled head placed inside the one which turns the pinion. The plate-holders are held in position by two revolving am-buttons which *draw* the holder tight against the camera, insuring against all possibility of leaking light; the same principle is employed for holding the reversible back in position.

Price includes one English book-holder and canvas carrying case but no lens or tripod

SIZE OF VIEW	SINGLE SWING	DOUBLE SWING	SIZE OF VIEW	SINGLE SWING	DOUBLE SWING
3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	\$20 00 .....	\$22 00 .....	8 x 10.....	\$36 00 .....	\$40 00 .....
4 x 5 .....	22 00 .....	24 00 .....	10 x 12.....	40 00 .....	46 00 .....
4 $\frac{1}{4}$ x 6 $\frac{1}{2}$ .....	24 00 .....	26 00 .....	11 x 14.....	48 00 .....	55 00 .....
5 x 7 .....	26 00 .....	28 00 .....	14 x 17.....	60 00 .....	67 00 .....
5 x 8 .....	28 00 .....	30 00 .....	17 x 20.....	75 00 .....	85 00 .....
6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ ....	30 00 .....	32 00 .....			

## NEW MODEL STEREOSCOPIC CAMERA



This is the lightest, most compact and simplest Stereoscopic camera yet placed on the market, combining all those most desirable features essential in a Stereo. camera.

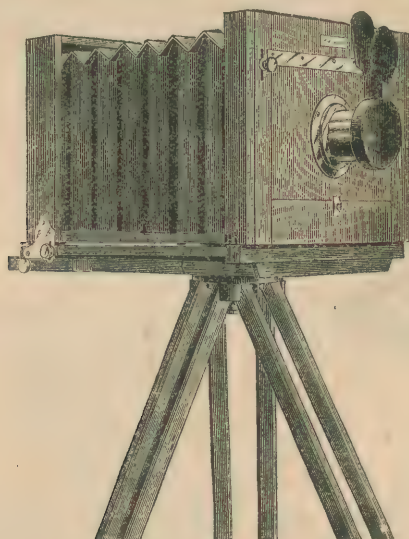
Price, for 5 x 8 complete, including one Model Holder and pair of

No. 1 R. O. Co. single view lenses, matched.....	\$27 50
Complete, without lenses.....	21 00
“ “ “ or tripod.....	17 50



# PHOTOGRAPHIC APPARATUS AND SUPPLIES

## NEW MODEL



This Camera is well known, having been in the market for the past four years, and is conceded to be the best low-priced camera in the market. It was made to meet the wants of the amateur who wished a good but cheap apparatus, and its popularity attests its merits. We have recently added several improvements, which will still increase its popularity. It is made of selected cherry, well seasoned, highly finished, with nickel trimmings. The focusing screen is hinged, which is much more convenient than when loose, as in most low priced instruments, and less liable to loss and breakage. The Camera has folding bed, sliding front, and is reversible; the folding part of bed is held rigid by our new clamp-hook, the nearest perfect of all devices used for the purpose.

Price includes R. O. Co.'s single view lens, Standard folding tripod, Carrying case and one Model plate-holder, (except 8 x 10, where neither lens nor tripod are included).

SIZE OF VIEW	WITHOUT SWING	SINGLE SWING	SIZE OF VIEW	WITHOUT SWING	SINGLE SWING
3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	\$11 00	\$13 00	5 x 8.....	\$14 00	\$16 00
4 x 5.....	11 00	13 00	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ .....	16 00	18 00
4 $\frac{1}{4}$ x 6 $\frac{1}{2}$ .....	13 00	15 00	8 x 10.....	18 00	20 00
5 x 7.....	14 00	16 00			

## NEW MODEL IMPROVED

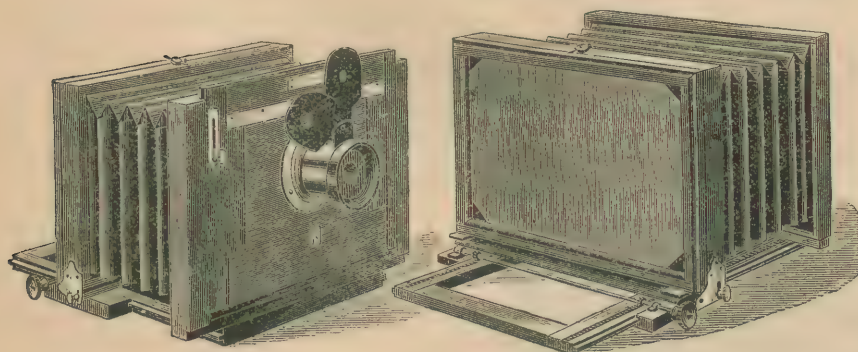


Fig. 1

Fig. 2

and is reversible; it has rack and pinion focusing movement; the folding part of bed is held rigid by our new clamp-hook, the quickest, easiest and best device yet used for the purpose.

Price, including R. O. Co.'s single view lens, Standard folding tripod carrying case and one Model plate holder, (except 8 x 10 where neither lens nor tripod is included):

SIZE OF VIEW	SINGLE SWING	DOUBLE SWING	SIZE OF VIEW	SINGLE SWING	DOUBLE SWING
3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	\$14 00	\$16 00	5 x 8.....	\$20 00	\$22 00
4 x 5.....	16 00	17 50	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ .....	25 00	26 50
4 $\frac{1}{4}$ x 6 $\frac{1}{2}$ .....	18 00	20 00	8 x 10.....	25 00	28 00
5 x 7.....	20 00	22 00			

This Camera is made after the general style of the New Model. It has enjoyed the reputation for the past three years of being the most popular camera in the market, and deservedly so, being the only strictly first-class camera made at a price within the reach of the ordinary amateur, and is conceded to be the best camera for the price to be found in the market.

It is made of the best Honduras mahogany, highly polished, with nickel trimmings; it has sliding front, folding bed,

# PHOTOGRAPHIC APPARATUS AND SUPPLIES

## THE PEERLESS

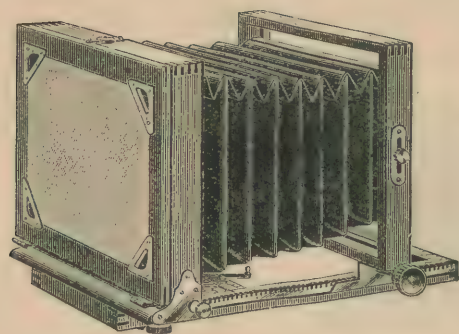


Fig. 1.



Fig. 2.

The Peerless is destined to become a very popular camera; it is made in the same excellent manner that characterizes all our work; we have spared no pains to make it one of the most desirable cameras in the market; it is indeed strictly first-class in all its appointments.

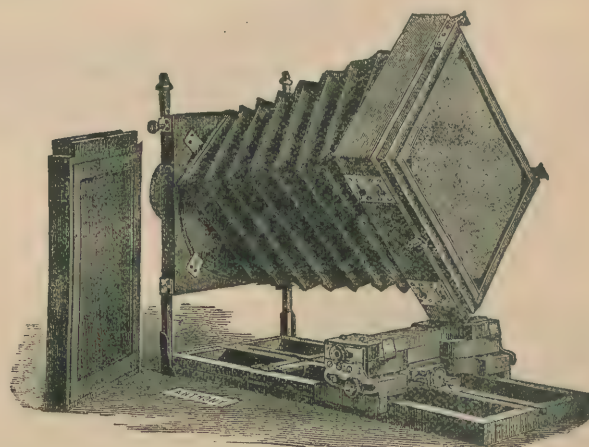
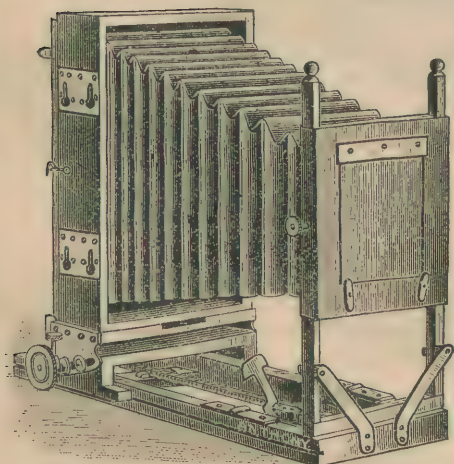
Like the Ideal and Excelsior, the Peerless has forward focus, the guides working in the groove in the side of the metal rack; the bellows is slightly coned, though the front is wide enough for stereoscopic work.

It is made of Honduras mahogany, highly polished, with nickel trimmings; it has sliding front, folding bed, rack and pinion, and is easily reversed; the same device for holding folding part of bed rigid is used as on the New Model.

Price includes R. O. Co. Single View Lens, Tripod, Canvas Carrying Case and one Model Plate Holder, except 8 x 10, where neither lens nor tripod are included.

SIZE OF VIEW.	SINGLE SWING.	DOUBLE SWING.
3½ x 4½ .....	\$19 00 .....	\$21 00
4 x 5 .....	20 00 .....	22 00
4½ x 6½ .....	22 00 .....	24 00
5 x 7 .....	24 00 .....	26 00
5 x 8 .....	26 00 .....	28 00
6½ x 8½ .....	30 00 .....	32 00
8 x 10 .....	28 00 .....	30 00

## THE PATENT NOVELETTE VIEW CAMERAS



These are made in the best possible manner, and of first quality mahogany in good hard varnish finish. They have single and double swing backs, cone bellows and folding beds; are very light, compact and strong. Their peculiar construction admits of making the pictures either vertically or horizontally with equal ease, the change of position being effected very quickly.

The rear part of the camera is separated from the bed by merely pushing it from left to right, the key-hole slots releasing the heads of the screws.

Packed in a sole-leather carrying case, with sling but without lens or tripod.

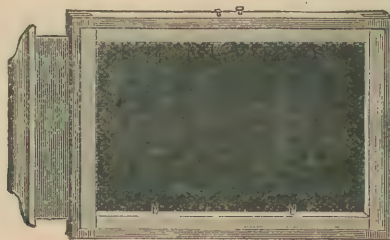
PRICES.	SINGLE SWING.	DOUBLE SWING.
4½ x 6½, in carrying case, with one perfect double dry plate holder, ...	\$22 00	.....
5 x 8, as above .....	22 00	\$25 00
6½ x 8½, " .....	27 50	30 00
8 x 10, " .....	33 00	35 00



# PHOTOGRAPHIC APPARATUS AND SUPPLIES—Continued

## DOUBLE DRY-PLATE HOLDERS

### MODEL DOUBLE HOLDER

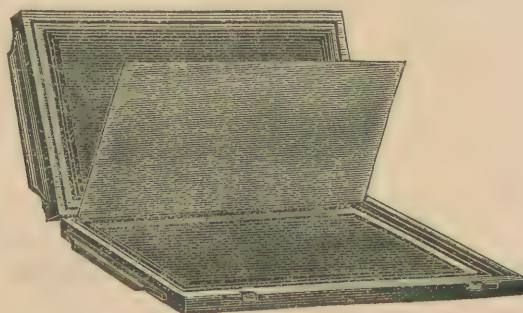


The Model Double Dry Plate Holder has been sold by us for four years and scarcely needs any detailed description. It is so arranged that the entire surface of the plate is exposed.

They will admit of the use of plates which are equal in length to the width of the holder. For example: a 4 x 5 plate can be used in a 5 x 8 holder. Kits can be used for other sizes, if desired.

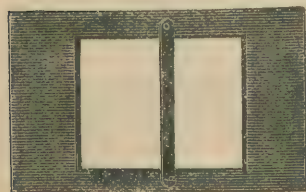
3½ x 4½ .....	\$1 75	5 x 8 .....	\$2 25
4 x 5 .....	1 75	6½ x 8½ .....	2 75
4½ x 6½ .....	2 00	8 x 10 .....	4 50
5 x 7 .....	2 25		

### ENGLISH BOOK HOLDER



This is the regular English form of holder, and it has many advantages; the two sides are hinged, and open like a book, when placing or displacing the plates; the septum, for division between the two sides of holder, is also hinged, and no trouble to put in place in the dark room.

3½ x 4½ .....	\$2 25	6½ x 8½ .....	\$4 00
4 x 5 .....	2 50	8 x 10 .....	6 00
4½ x 6½ .....	2 60	10 x 12 .....	8 00
5 x 7 .....	2 75	11 x 14 .....	10 00
5 x 8 .....	3 00	14 x 17 .....	13 50



### INSIDE KITS

Consist of thin wooden frames, made to fit in the Dry Plate Holder, and with rabbits for holding smaller plates.

Our Kits have a spring at the back for holding the plate in place:

4 x 5 to hold 3½ x 4½ plates, each .....	\$0 40
4½ x 6½ " 3½ x 4½ " " .....	50
5 x 7 " 3½ x 4½ or 4 x 5 plates each .....	50
5 x 8 " 3½ x 4½, 4 x 5, or 4½ x 6½ plates, each .....	50
6½ x 8½ " 4 x 5, 4½ x 6½, 5 x 7, or 5 x 8 plates, each .....	55
8 x 10 " 4½ x 6½, 5 x 7, 5 x 8 or 6½ x 8½ " " .....	60
10 x 12 " 5 x 7, 5 x 8, 6½ x 8½, or 8 x 10 " " .....	75
11 x 14 " 5 x 8, 6½ x 8½, 8 x 10, or 10 x 12 " " .....	1 00
14 x 17 " 8 x 10, 10 x 12, or 11 x 14 " " .....	1 25
17 x 20 " 8 x 10, 10 x 12, 11 x 14, or 14 x 17 " .....	1 75

## PHOTOGRAPHIC APPARATUS AND SUPPLIES---CONTINUED

### TRIPODS



#### Standard Folding Tripod

This is our original style of tripod, an extended description of which is hardly necessary. It is light, strong and rigid.

The tripod screw remains always in the iron top, ready for use and not liable to loss.

#### PRICE

For cameras from 4 x 5 to 6½ x 8½, \$2 50

#### CARLTON'S SLIDING TRIPOD



This is the simplest and best form of Sliding Tripod yet made. The legs are made in three pieces, same as the folding, which renders the tripod firmer when set up than when made of two pieces, which is the ordinary form. The nickeled clamps each side of the leg have the ends turned toward each other, and when clamped, the pressure is exerted from all sides, rendering it the most rigid tripod in market. The special advantages of a sliding tripod over a folding one, are ease of leveling the camera in rough places by adjusting the length of the tripod legs, and the quickness with which it is set up or taken down.

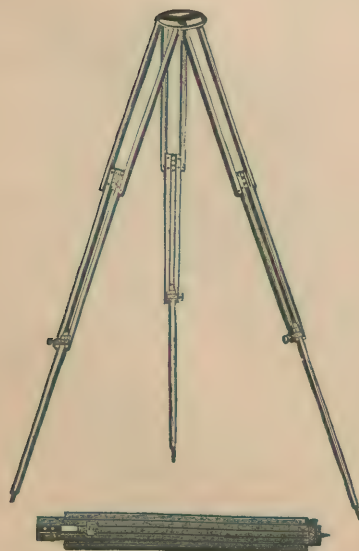
No. 1—For 3¼ x 4¼ to 4¼ x 6½ camera,.....\$3 50

No. 2—For 5 x 8 and 6½ x 8½ “ ..... 4 00

No. 3—For 8 x 10 to 11 x 14 “ ..... 4 50

#### COMBINATION TRIPOD

Combined Sliding and Folding



This is our latest form of Tripod, and we can confidently say it is the most convenient form of tripod ever introduced. It is jointed in three lengths, and when closed is but 22 inches long. As the lower section slides, the tripod has all the advantages of adjustment of the Sliding Tripod.

No. 1—For cameras 3¼ x 4¼ to 4¼ x 6½.....\$4 50

No. 2—For cameras 5 x 8 and 6½ x 8½..... 5 00

No. 3—For cameras 8 x 10 to 11 x 14..... 5 50



# Photographic Apparatus and Supplies---Continued

## R. O. CO.'S DROP SHUTTER



This is one of the neatest and best shutters in the market, being simple, durable and convenient. The action can be readily controlled and regulated from the gravity drop to as quick an exposure as desired. It is made of brass, full nickeled.

It is made to fit all sizes of R. O. Co.'s Single View and Excelsior lenses; also Nos. 1 and 2 Darlot Rapid Hemispherical and will be made to fit any size up to 2½ inch.

Price, for any of the above sizes.....\$3 25

## UNIVERSAL DROP SHUTTER



This is a very simple yet effective form of shutter. The slide falls of its own weight when released, and by the use of a rubber band any degree of rapidity may be obtained.

The body of the shutter being of mahogany, it has a very handsome appearance. A thin strip of rubber is placed in the top of the shutter to lessen the concussion caused by the falling slide.

Price.....\$1 75

## UNIVERSAL SHUTTER FOR STEREOSCOPIC LENSES



This is similar to the Universal Drop Shutter except for two lenses, and as the slide moves horizontally, it is moved by a rubber band.

Price.....\$3 00

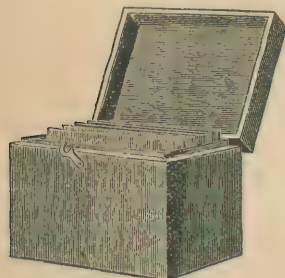
## CARLTON'S STEREOSCOPIC EXPOSER

The Carlton Stereoscopic Exposer is not designed for instantaneous work, but rather is a device for exposing the two lenses simultaneously though it can be done very rapidly indeed.

Price.....\$3 50

## NEGATIVE BOXES

Made from selected white wood, with hinged cover. Are exceedingly convenient for storing negatives. Each holds 24 plates.



3¼ x 4¼.....\$ 85	5 x 8.....\$1 25
4 x 5.....1 00	6½ x 8½.....1 35
4¼ x 6½.....1 00	8 x 10.....1 50
5 x 7.....1 25	10 x 12.....2 50

## DRY PLATE SAFETY BOXES

These are made similar to the Negative Box, but are made with all joints thoroughly broken and are lined with black velvet, which prevents reflection.

They are useful in the dark room, as the box of plates may be put in the safety box, saving wrapping and unwrapping them when filling the holders in a hurry.

A lock and key can be furnished with each at 60 cts. extra.

3¼ x 4¼.....\$1 00	5 x 8.....\$1 50
4 x 5.....1 25	6½ x 8½.....1 75
4¼ x 6½.....1 35	8 x 10.....2 00
5 x 7.....1 40	10 x 12.....2 50

### PHOTOGRAPHIC OUTFIT AND SUPPLIES—CONTINUED

## R. O. CO'S FLAT PRINTING FRAMES

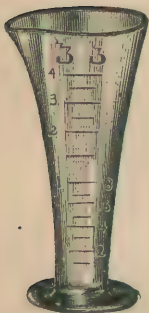


Our printing frames are constructed on an improved plan. The springs are fastened by rivets instead of screws, and have a washer placed under them to prevent wear on the wood work.

The catch-buttons are set into the wood flush with the top, thus preventing their turning.

The back is made to open at the center or two-thirds, whichever style be wanted, though we find best sale for the latter, as it allows more of the print to be seen during printing.

3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	\$ 60	8 x 10.....	90
4 x 5.....	65	10 x 12.....	1 50
4 $\frac{1}{2}$ x 6 $\frac{1}{2}$ .....	70	11 x 14.....	2 50
5 x 7.....	75	14 x 17.....	3 00
5 x 8.....	75	16 x 20.....	3 50
6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ .....	85	17 x 20.....	3 75



## GRADUATED GLASSES

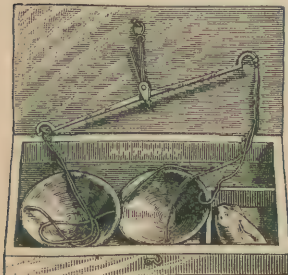
FOR MEASURING LIQUIDS

Minim .....	\$ 30
1 ounce .....	35
2 “ .....	40
4 “ .....	50
6 “ .....	60
8 “ .....	75
12 “ .....	1 00
16 “ .....	1 25

## FOLDING NEGATIVE RACK

An inexpensive and very convenient accessory for the dark room, preventing the negatives from becoming scratched while drying. Holds 24 negatives.

Price, for plates up to $6\frac{1}{2} \times 8\frac{1}{2}$ .....	\$ 60
“ “ “ from $8 \times 10$ to $14 \times 17$ .....	1 25



## SCALES AND WEIGHTS

5 inch beam, weighing grains and drams.....	\$1 00
6 " " " " " " .....	1 25
Standard Scale, 5½ inch beam, 2 inch brass pans with upright beam, on walnut stand; all packs in drawer.	
Price.....	\$6 50

## VIEW FINDER

The View Finder is in reality a miniature camera, and is attached to the top of a view camera in taking instantaneous pictures of moving objects.

The same view is seen on the small screen as is reflected in the camera, and by observing the screen of the Finder the exact moment for exposure can be told. It is made with a small attachment for attaching to the camera.

Price.....	\$2 50
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Price.....\$2 50

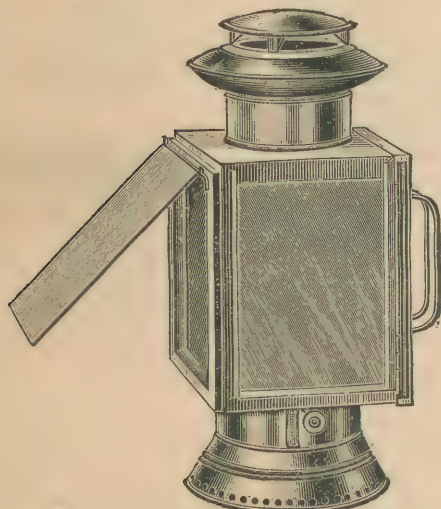


## Photographic Outfits and Supplies---Continued



### POCKET RUBY LANTERN

For general dark-room work for amateurs. Very portable. Price, each, 75 cents



### CLIMAX



### DARK-ROOM

### LANTERN



It has three large illuminating surfaces and reflector. The glass is of the correct non-actinic hue, and outside of it are extra sashes, in which additional lights of any desired tints may be slid. It is perfectly safe, and by all odds the most comfortable lantern to work by yet seen. We have discontinued the flap.

Price.....each, \$2 50

### CARBUTT'S MULTUM IN PARVO LANTERN

Adapted for either oil or gas; is about nine inches square by fourteen high, with eight by ten Ruby glass in front. Can be used for seven or more different operations in photography.

Price.....each, \$7 00

### THE TISDELL CANDLE RUBY LIGHT

A light for developing the most sensitive Gelatine Dry Plates. One-half of a common sperm candle is the fuel required, consequently there is

No danger of an explosion.

No breaking of ruby chimney from over-heating.

No oil to spill while traveling.

No disagreeable smell while at work in the dark room, and

No possibility of smoke.

The lamp is always ready for use and nothing to get out of order. Its manipulation is extremely simple. A single glance at the lamp while open is sufficient to explain the method of its use to a perfect stranger. It is without exception the most perfect and *petite* construction in the shape of a ruby developing lamp ever introduced in the photographic market. Its outside measurement when packed for transportation is only 6½ x 2½ inches, and its weight only twelve ounces.

Price, complete.....\$1 50

# PHOTOGRAPHIC SUPPLIES--CONTINUED.

## JAPANNED TIN DEVELOPING TRAYS

These Trays are made with two small ridges in the bottom to prevent the plate from adhering.

4 x 5, each .....	\$ 25	6½ x 8½, each .....	\$ 45
5 x 8, " .....	30	8 x 10, " .....	60

## VULCANIZED RUBBER TRAYS

The neatest developing tray yet introduced is that made from vulcanized rubber. It has a polished surface, thus it is readily kept clean.

Two slightly raised ridges on the bottom of the tray prevent the plate from adhering to the tray.

4 x 5 .....	\$ 50	6½ x 8½ .....	\$1 10
5 x 8 .....	85	8 x 10 .....	1 60

## AGATE WARE PANS

FOR TONING PRINTS

Stronger and lighter than porcelain and not liable to breakage.

7 x 9 inches .....	\$1 10	8 x 12 inches .....	\$1 75
8 x 10 " .....	1 50	12 x 14 " .....	2 00

## CAMEL'S HAIR BRUSHES

FOR DUSTING OFF PLATES BEFORE EXPOSURE AND FOR MOUNTING

1 inch wide .....	30 cts	2 inches wide .....	45 cts
1½ " .....	35 "	2½ " .....	55 "

## BRISTLE BRUSHES

FOR MOUNTING OR VARNISHING

1 inch wide .....	25 cts	2 inches wide .....	30 cts
1½ " .....	25 "	2½ " .....	45 "

## NEGATIVE PRESERVERS

These are envelopes made of strong manilla paper, the proper size for the negative; they are open at the end for inserting the negative, and have space cut for admitting the thumb and finger in removing it.

On the face are printed lines for name, number, description and remarks: They are invaluable for preserving the negative from dust, scratches, etc.

Put up in packages of 50 each.

3¼ x 4¼ per pkg. ....	\$ 25	5 x 8 per pkg. ....	\$ 50
4 x 5 " .....	35	6½ x 8½ " .....	60
4¼ x 6½ " .....	40	8 x 10 " .....	75
5 x 7 " .....	45	10 x 12 " .....	90

## OTHER ACCESSORIES

Negative Varnish .....	each, \$ 50	Stronger Water Ammonia .....	each, \$ 25
Concentrated Intensifier .....	" 50	Pyrogallie Acid .....	per ounce, 50
Chloride of Gold, (15 grain bottle) ..	" 75	Sulphite of Soda .....	per pound, 25
Acetate of Soda, (2 oz. bottle) ....	" 10	Carbonate of Potash .....	" 25
Hypo-Sulphite Soda, (1 lb. box) ..	" 10	Bromide Ammonia .....	per ounce, 10
Concentrated Developer, No. 1 ...	" 60	Bi-Carbonate of Soda .....	" 10
Concentrated Developer, No. 2 ...	" 20	Carbonate of Soda .....	" 10
Focusing Cloths, velvet or goss'm'r	" 1 00		



# Photographic Supplies--Continued

## READY SENSITIZED ALBUMEN PAPER

This paper is imported by us and will be found to be of the finest quality and of uniform sensitiveness, and will tone rapidly.

Put up in light-tight packages of two dozen sheets, except 18 x 22, which are in rolls of one dozen sheets.

3½ x 4½, per package.....	\$0 35	6½ x 8½, per package.....	\$1 25
4 x 5 ".....	45	8 x 10 ".....	2 00
4½ x 6½ ".....	70	18 x 22 per roll.....	3 75
5 x 8 ".....	85		

## FERRO-PRUSSIAN OR BLUE PAPER

FOR MAKING BLUE AND WHITE PICTURES

This paper is extremely simple in its manipulation, as it requires no toning and is very convenient for making proofs from negatives. It is also adapted for architects and for reproductions of machinery, etc., for an engraver to copy from. The rapidity with which a print can be made is a great recommendation in its favor.

Put up in light-tight packages of two dozen sheets.

3½ x 4½, per package.....	\$0 25	5 x 8 per package.....	\$0 50
4 x 5 ".....	30	6½ x 8½ ".....	75
4½ x 6½ ".....	40	8 x 10 ".....	95

## DRY PLATES

Forbes, Eagle, Seed, Cramer, Eastman's and Stanley

3½ x 4½, per doz.....	\$0 50	8 x 10, per doz.....	\$ 2 80
4 x 5 ".....	75	10 x 12 ".....	4 50
4½ x 6½ ".....	1 05	11 x 14 ".....	5 85
5 x 7 ".....	1 30	14 x 17 " double thick.....	10 50
5 x 8 ".....	1 45	16 x 20 ".....	15 25
6½ x 8½ ".....	1 90	18 x 22 ".....	18 00

## PASSAVANT OR SAN FRANCISCO DRY PLATES

3½ x 4½, per doz.....	\$0 50	5 x 8 per doz.....	\$1 25
4 x 5 ".....	65	6½ x 8½ ".....	1 65
4½ x 6½ ".....	90	8 x 10 ".....	2 40
5 x 7 ".....	1 25	10 x 12 ".....	4 00

## GLASS FUNNELS

For Filtering, Etc.

½ Pint.....	\$0 20	1 Quart.....	\$0 30
1 ".....	25	2 ".....	40

## GLASS FORMS

For Trimming Photographic Prints

Stereoscopic, Arched Top.....	\$0 50	5 x 7 Square Corners.....	\$0 85
3½ x 4½, Square corners.....	50	5 x 8 ".....	1 00
4 x 5 ".....	60	6½ x 8½ ".....	1 25
4½ x 6½ ".....	75	8 x 10 ".....	1 75

## BLOTTING PAPER

Extra Heavy White, for Drying Photographic Prints

9 x 12 inches, per dozen sheets.....	\$0 30	19 x 24 inches, per dozen sheets.....	\$1 20
12 x 19 ".....	60		

## PHOTOGRAPHIC SUPPLIES—Continued

## CARD MOUNTS

Card Mounts are cards on which to paste the finished print.

The appearance of the finished photograph depends in no small degree on the manner in which it is mounted. A good photograph is worthy of a good card mount, while a poor one is not worth mounting at all.

Put up in packages of two dozen each

## No. 1—Plain White

4 x 5 per pkg.	\$0 20
4½ x 6½ "	30
5 x 8 "	40
6½ x 8½ "	60
8 x 10 "	80

## No. 2—Unenameled back and face, assorted colors.

4 x 5 per pkg.	\$0 25
4½ x 6½ "	35
5 x 8 "	50
6½ x 8½ "	75
8 x 10 "	1 00

## No. 3—Enameled back, unenameled face, assorted colors.

4 x 5 per pkg.	\$0 30
4½ x 6½ "	40
5 x 8 "	60
6½ x 8½ "	80
8 x 10 "	1 20

## No. 4—India Tint, with wide white border, suitable for framing.

4 x 5 per pkg.	\$0 65
5 x 8 "	1 10
6½ x 8½ "	1 40
8 x 10 "	1 80

## No. 5—Amber, unenameled, with gold beveled edge.

4 x 5 per pkg.	\$0 45
4½ x 6½ "	60
5 x 8 "	80
6½ x 8½ "	1 20
8 x 10 "	1 60

## No. 6—Bottle Green, with gold beveled edge.

4 x 5 per pkg.	\$0 55
4½ x 6½ "	75
5 x 8 "	1 00
6½ x 8½ "	1 30
8 x 10 "	1 80

## No. 7—Maroon face, grey back with gold beveled edge.

4 x 5 per pkg.	\$0 55
4½ x 6½ "	75
5 x 8 "	1 00
6½ x 8½ "	1 30
8 x 10 "	1 80

## No. 8—Extra thick, gold beveled edge; chocolate, bottle green and maroon.

4 x 5 per pkg.	\$1 00
4½ x 6½ "	1 50
5 x 8 "	1 80
6½ x 8½ "	2 00
8 x 10 "	2 50

## EXTRA PARTS OF APPARATUS

## HOLDER SLIDES.

3¼ x 4¼	\$0 20
4 x 5	25
4½ x 6½	25
5 x 7	25

5 x 8	\$0 35
6½ x 8½	35
8 x 10	45

Add 50 per cent. if made of hard rubber.

## FRONT BOARDS

To fit New Model, up to 6½ x 8½	\$0 35
" " " 8 x 10	50
" " Improved or Peerless, up to 6½ x 8½	50
" " " 8 x 10	60

To fit Ideal or Excelsior, to 6½ x 8½	50
" " " 8 x 10 and above	60
Front board and division for stereo. work	75

## GROUND GLASS

3¼ x 4¼	\$0 20
4 x 5	25
4½ x 6½	30
5 x 7	45

5 x 8	\$0 50
6½ x 8½	60
8 x 10	75
10 x 12	1 00

Caps for R. O. Co's Lenses, each	\$0 25
Diaphragms for R. O. Co. single view lens, per set	75
" " " Excelsior lens "	75
Morocco Case for Diaphragms for Excelsior lens	60
Flanges for R. O. Co. single view lens	50
" " " Excelsior lens	75
Cam-buttons, for holding holder on Ideal, each	25

Buttons, eccentric groove for reversing back on Ideal, each	25
Spring-catch, for holding holder on New Model, each	35
Tripod Head for Standard Tripod	75
Wood Head for Combination Tripod	75
Tripod Screws, each	25
Ruby Glass for Pocket Lantern	10
Ruby or Orange Glass for Peerless Lantern	25



# PHOTOGRAPHIC SUPPLIES---Continued

## CHEMICAL OUTFIT A

### FOR PRODUCING THE NEGATIVE

The chemicals and articles which should accompany any of our cameras and with which the picture is made, consists of the following articles, arranged in sizes according to the size of camera used:

Two Japanned Tin Developing Trays; one dozen Dry Plates; one 4-ounce Graduated Glass; one bottle Concentrated Developer, No. 1; one bottle Concentrated Developer, No. 2; one 1-pound box Hypo-Soda; one Pocket Ruby Lantern; one copy Amateur Photographer.

Above arranged for a $3\frac{1}{4} \times 4\frac{1}{4}$ Camera.....	\$3 25
For a 4 x 5 Camera.....	3 55
For a $4\frac{1}{4} \times 6\frac{1}{2}$ Camera.....	3 90
For a 5 x 8 Camera.....	4 50
For a $6\frac{1}{2} \times 8\frac{1}{2}$ Camera.....	5 00
For an 8 x 10 Camera.....	6 00

## PRINTING OUTFIT A

### FOR PRINTING, TONING AND FINISHING THE PICTURE

Consists of the following articles: one Printing Frame; one package Sensitized Albumen Paper; one 15-grain bottle Chloride of Gold; one 2-ounce bottle Acetate of Soda; one dozen Card Mounts.

Above arranged for a $3\frac{1}{4} \times 4\frac{1}{4}$ Camera.....	\$2 00
For a 4 x 5 Camera.....	2 10
For a $4\frac{1}{4} \times 6\frac{1}{2}$ Camera.....	2 45
For a 5 x 8 Camera.....	2 75
For a $6\frac{1}{2} \times 8\frac{1}{2}$ Camera.....	3 30
For an 8 x 10 Camera.....	4 50

## COMPLETE PRINTING AND CHEMICAL OUTFIT AA

Consisting of one Rubber Focusing Cloth; one Negative Rack; one dozen Dry Plates; two bottles Developer; one 4-ounce Graduate; one minum Graduate; one 15-grain bottle Chloride of Gold; one bottle Acetate of Soda; one pound box of Hypo-Soda; one Camels Hair Duster; one package Card Mounts; two dozen sheets Blue Paper; two dozen sheets Albumen Paper; one Printing Frame; one Ruby Lamp; two Japan Trays; one bottle Paste; one bottle Concentrated Intensifier; one bottle Negative Varnish.

Above arranged for

$3\frac{1}{4} \times 4\frac{1}{4}$ Camera.....	\$ 8 75
4 x 5 ".....	9 25
$4\frac{1}{4} \times 6\frac{1}{2}$ ".....	10 40
5 x 8 ".....	11 25
$6\frac{1}{2} \times 8\frac{1}{2}$ ".....	13 00
8 x 10 ".....	16 25

## TO AMATEURS

We omit the usual "Outfit Department," which we deem unnecessary, as our Cameras are complete, with the exception of the Ideal and 8 x 10 New Model, New Model Improved and Peerless, which we list in this way, for the reason that most people who buy the best class of Cameras, and especially the larger sizes, prefer one of the higher grade of lenses, and many people, especially professionals, have one or more lenses and tripods, and wish only the camera, without these articles.

Should you select one of these cameras, you have only to add the price of lens and tripod selected, which makes the Camera complete.

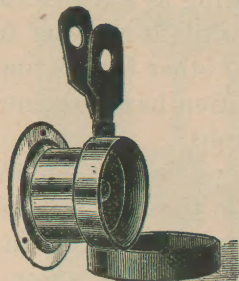
To the price of the complete Camera, add the price of the Chemical and Printing Outfits A, or the Complete Printing and Chemical Outfit AA, (whichever you have made up your mind to purchase) corresponding to the size of Camera selected, which will be *every thing necessary* to take pictures.



## LENSES

For landscape work the Single View Lens is most used. It gives good results and will make good interiors and portraits.

### R. O. CO.'S SINGLE VIEW LENS



These lenses are conceded to be the best of the low-priced lenses. They have the qualities most sought in a view lens—clear definition and great depth of focus. They are mounted in a nickel plated mount with *four removable* diaphragms, a point of the greatest importance to compensate for the varying strength of different lights.

Though designed for landscape work, they will make excellent interiors and portraits in a well lighted room or on a porch.

No.	Length Focus	Size	Price	No.	Length Focus	Size	Price
0	5 inch	3½ x 4½	\$4 00	3	11 inch	6½ x 8½	\$6 00
1	6 "	4 x 5	4 00	4	13 "	8 x 10	8 00
1½	8 "	4½ x 6½	4 50	No. 1, furnished in matched pairs for			
2	10 "	5 x 8	5 00	stereoscopic work at			
							8 00

### DARLOT RAPID HEMISPHERICAL LENS

These Lenses embrace an angle of from 60 to 75 degrees; are quick working, perfectly rectilinear and will be found excellent for landscape and out-door groups. Also for copying maps, engravings, architectural plans, etc.

No.	Length Focus	Size	Price	No.	Length Focus	Size	Price
1	5½ inch	4 x 5	\$15 00	3	10½ inch	8 x 10	\$35 00
2	9 "	5 x 8	25 00	4	14 "	11 x 14	50 00

### BECK'S "AUTOGRAPH" RECTILINEAR LENS

These Lenses are perfectly Aplanatic, covering with full aperture the size plate for which they are designated. They are very rapid in action, rendering them particularly valuable for instantaneous and short-time exposures; are rigidly rectilinear and symmetrical, possesses wonderful penetration and definition.

No.	Length Focus	Size View	Price	No.	Length Focus	Size View	Price
1	6¾ inch	4 x 5	\$30 00	5	13 inch	8 x 10	\$60 00
3	8¾ "	5 x 8	35 00	6	16 "	10 x 12	75 00
4	11 "	6½ x 8½	45 00				

### VOIGTLÄENDER'S EURYSCOPE

This Lens stands unrivaled for groups, full sized figures and large heads, working as it does, with full aperture and giving a depth of focus and equal distribution of light, as yet unequaled by any known instrument.

No.	Length Focus	Size	Price	No.	Length Focus	Size	Price
0	4½ inch	4 x 5	\$27 00	3	11½ inch	8 x 10	\$65 00
1	8 "	5 x 8	45 00	4	11 "	11 x 14	87 00
2	10 "	6½ x 8½	52 00				

NOTE.—In selling Cameras without lens or tripod, it is not usual for us to deduct full list-price, nor can we do so, as the entire camera is placed together and sold at a less price than could the several articles be sold separately. We allow \$2 00 for 3½ x 4½ and 4 x 5 lenses; \$2 50 for 4½ x 6½; \$3 00 for 5 x 7 and 5 x 8; and \$4 00 for 6½ x 8½; and we allow \$1 50 for the tripod of each camera.



# MODERN PHOTOGRAPHY

## EASY AND SIMPLE TO LEARN; ANY ONE OF AVERAGE INTELLIGENCE CAN MAKE GOOD PICTURES

Photography is very enjoyable and fascinating as a recreation; it offers more attractions than all the arts heretofore introduced in popular form, for while it answers fully the requirements of mechanical taste, it offers constant opportunities for the exercise of other intellectual qualities. Since the introduction of Dry Plates the processes of this most pleasing occupation have become so much simplified that anyone of average intelligence and ability can make good photographs.

Photography is instructive; it educates the eye, teaches one to observe more closely objects in the everyday walks of life, and is in every way elevating to the human mind.

Photography is indeed a wonderful art, so simple and certain are its methods that an intelligent child can make admirable pictures; yet so mysterious are the causes which produce the exquisite results, that scientists disagree and are in doubt as to their precise nature.

A Dry Plate which has been exposed to the action of the light coming through the lens, has undergone a great change; yet that change cannot be detected by the aid of the most powerful microscope, but when the plate is placed under the influence of the few simple chemicals comprising the developer, wonder grows into amazement at the great change going on under one's very eyes; outlines of familiar objects come out, as first the sail, then the hull and the masts and rigging of a great vessel come to us from out the dimness of a fog.

To the tourist and pleasure seeker, photography affords a most convenient and accurate method of recording wayside views of hill and dale, mountain, river and sea.

Beside being a pleasure and recreation, Photography is useful in the professions and manufactures. It is invaluable to *Physicians, Architects, Engineers, Manufacturers, Insurance Men, Mechanics*; a saving to them of time and trouble, as a photograph conveys much more definite knowledge than a sketch or diagram, and is much more readily made.

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## SELECTION OF APPARATUS

The most expensive apparatus, while it lends the same fascination afforded by a fine rod or gun, is not essential to successful work.

The selection of apparatus should be done with regard to the kind of work you propose to do. The first point to consider is the size of photograph you desire to take; in this you will be ruled somewhat by the weight and bulk you can carry with comfort.

You will next be guided to a certain extent by the amount you wish to invest in an outfit, though the same size can be bought at different prices, as we endeavor to meet the wants of all.

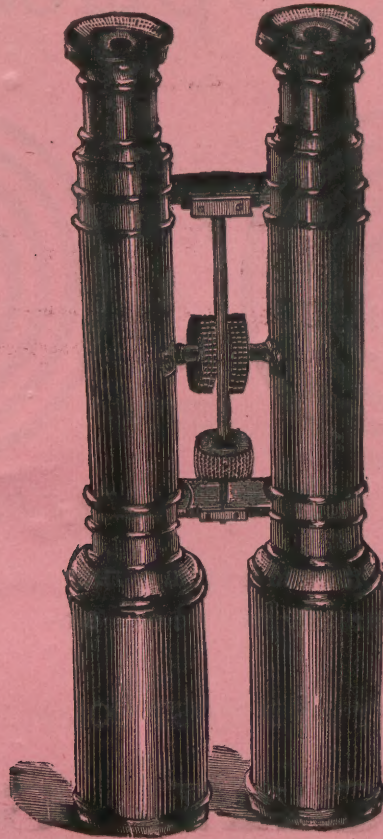
There are certain sizes in photography which have become standard, and for which Dry Plates and other articles are regularly made:  $3\frac{1}{4} \times 4\frac{1}{4}$  and  $4 \times 5$ , especially the latter, are popular among beginners, especially young people and ladies, though many will prefer  $4\frac{1}{2} \times 6\frac{1}{2}$ , as the resulting picture is more satisfactory in size: the proportions are symmetrical for landscapes and groups, while it makes a cabinet size portrait. The next size is  $5 \times 8$ , which is especially popular among all classes of amateurs, its proportions of length to width suiting well for general landscape work; more  $5 \times 8$  cameras than any other size are used by amateurs; it is the amateur size.  $6\frac{1}{2} \times 8\frac{1}{2}$  comes next, and is in constant requisition for all classes of work; it affords good space for landscapes, groups or portraits of a size suitable for framing. Next comes  $8 \times 10$  which is much used by professionals and ambitious amateurs, but is seldom purchased by beginners. Larger than  $8 \times 10$  is seldom used by amateurs unless for commercial purposes.

THE AMATEUR PHOTOGRAPHER, A Book of Instruction.....Price 25c.



# The Binocular Telescope

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**FOUR TIMES AS POWERFUL AS THE BEST FIELD GLASS OF THE REGULAR FORM**

This new form of marine and field glass has won an enviable reputation for its great power and wonderful optical qualities. A very important feature of the BINOCULAR TELESCOPE is the centering screw, by which the two tubes can be adjusted to the distance between the eyes, thereby avoiding all strain upon the ocular muscles, and the eyes have nothing to do but to contemplate the objects looked at.

The performance of the BINOCULAR TELESCOPE is equal to a spy-glass of very much greater power, because by the use of *both eyes* the field of vision, or amount of scenery which a person sees at one time, is wonderfully increased. This advantage enables the observer to "pick up" an object with great ease.

The BINOCULAR TELESCOPE is recommended as one of the best instruments for yachting, deer-stalking, military service, and general field use. It is furnished with screw shades, a strong sole-leather case which is made for the roughest usage, and a strap by which it may be carried upon the shoulders.

**Prices in Black Morocco Leather, \$35, \$40 and \$50**

**In Aluminium** The metal aluminium is one of the lightest metals known, and is extensively used for the bodies and mountings of opera and field glasses. The weight of them is reduced one-fourth when this metal is used in their construction. The quality of light weight adds greatly to the pleasure derived from an opera or field glass, as they can be more steadily held to the eyes, and are not a burden to those who carry them.

**From \$50 to \$200**



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KAHN  
&  
CO.  
OPTICIANS



## *STROBIC CIRCLES*

Hold this Catalogue by the right-hand bottom corner and give it a slight but rapid circular twisting motion, when each circle will separately revolve on its own axis.

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